48-51

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19[illegible]

File No. 6775/36

B CLASS

P.W **DEPARTMENT**

E **BRANCH** (1)

Subject:— Practical Training to B.S.E. Classes I & II Officers

B[K] 1941

E(1)

File No. 6775/36 XX

Ftd. Scott. Slip. 21 A

G.P.K.—J H 3 &50,000 - 5.34
G. R. G. D No 2108, dated 22 6-22.]

Correspondence

Sectt 78 A e

DOCKET SHEET (B)

Subject:—

File No. 6775/36 XX

P W DEPT.

E BRANCH. (1)

References:—

Date.	To whom sent.	Notes instructions,

Please put up current orders about training of candidates and probation in B.S.E class I and class II .

Sd/-

12-7-

E.B. (I)

E.B.(I).

For orders regarding training of "Students" or "Candidates" in the I.S.E. (now B.S.E.Class I) please see G.R.No. 6525, dated the 29-6-25, as modified by G.R.No.6585 , dated the 1-2-32, and further amplified by G.R.No. 5081, dated the 1-4-32.

2. For orders regarding training of "Candidates" in the B.S.E. Class II please see para. 15 of G.R.No. 7708/27 , dated the 22-3-37, and rule 6 in App. II accompanying this G.R.

Sd/-

13-7-48.

Pl. put up draft inviting attention of the SE; to para 2 of G.R. P.W.D. No. 6525 of 29-6-25 and impress on them the necessity of giving through training in different kinds of work even during the 2nd year of the service of direct recruits to class I and class II . Greater importance should be attached to proper training than giving the officers sub-dnl. charges in the early stages of their service.

Sd/-

19-7-48.

B.V.P.

Guaranteed appointments to the Bombay Service of Engineers Class I and Class II .

Orders regarding the practical training of Students and Candidates for appointment to-

Government of Bombay .

Public Works Department .

Circular Memorandum No. 6775/36.

Bombay Castle, 27th July 1948.

GOVERNMENT CIRCULAR MEMORANDUM.

The attention of the Superintending Engineers of Circles and the Public Health Engineer to Government is invited to paragraph 2 * of Government Resolution, Public Works Department, No.6525, dated the 29th June 1925, and they are requested to see that direct recruits to the Bombay Service of Engineers Class I and Class II are given thorough training on different kinds of works even during the 2nd year of their service and that greater importance is attached to proper training than giving the officers sub-divisional charges in the early stages of their service.

By order of the Governor of Bombay,

Sd/-

(A.G.MAYDEO).

Deputy Secretary to Government.

* Typed as an accompaniment to this Government Circular Memorandum on the reverse.

To

The Finance Department.
The Education and Industries Department.
The Accountant General Bombay
'The Principal, College 'of Engineering, Poona
'All Executive Engineers of Divisions.

The Superintending Engineers
of Circles.
The Public Health Engineer to
Government .

.....

Accompaniment to Government Cricles Circular Memorandum No. 6775/36, Public Works Department, dated the 27th July 1948.

.....

Extract paragraph 2 from Government Resolution, Public Works Department, No . 6525, dated the 29th June 1925.

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2. In the second year of their service the Students or Candidates should be attached to suitable and selected subdivisional offices held by Assistant Executive Engineers , or Senior Assistant Engineers for further training on works and for learning sub-divisional accounts , those found capable being placed in charge of light sub-divisions at the discretion of the Superintending Engineer, during the progress of this year.

JP
27/7/48

B.V.P.

Extract paragraphs 1 to 6 of letter No. A/Eng/ 2198, dated the 16th September from the Joint Director of Technical Education.

I am very happy to note that the Public Works Department are keen on giving a thorough training to their Class I and Class II Officers, in preference to giving them sub-divisional charges in the early stages of their service. This is sure to pay rich dividends in the future.

2. However, I would like to offer a few suggestions in the light of my experience with the young generation of Public Works Department Officers who incidentally happen to be my own students and are, therefore, free in the expression of their difficulties.

At present the Executive Engineer is to say the least a jack of all trades. He is literally buried under files of papers and has little time left for what should be his major interest viz. Engineering. This is a sad state of affairs because with a few years' work under such conditions, the man is certain to loose all interest in the up-to-date problems of Engineering and become a signature robot. Most of the designs turned out in the Public Works Department are done at the sub-overseer's level, which naturally cannot be considered anywhere near the order it should be. Brilliant men are taken by the Public Works Department-men who would shine in almost any walk of life and these in barely 10 years' time, are rendered effete not because they are unwilling to give of their best, but because of a faulty organisation.

How can a man be a specialist in buildings, roads, irrigation, water-supply, sanitary engineering and the multifarious other activities with which the

Engineer is familiar? And this is what Public Works Department wants him to be. The average P.W.D.Engineer is averse to design and for the simple reason that he has not put in any time in proper designing office. First class designs class designing office. First class design can save thousands of rupees to the Department. It is my firm conviction that every Class I and Class II officer should put in no less than one year in a first class designing office. In fact designing is considered so important in England that no candidate would be elected to be an Associate Member of a well-known British professional institution, without a minimum of one year's apprenticeship in a design office and that is exactly what it should be.

3. Firstly, May I suggest that the Public Works Department should open a central design office, say in Bombay and do all the designing work there. Such an organisation will produce first-class designers who will prove an excellent training compete on even terms with the best any commercial firm can turn out. What is more, such an office will prove an excellent training ground for all the young officers joining the Department. In fact even older hands may with profit be seconded to it to give them fresh ideas. A design office is a pooling ground for knowledge, exactly as a Bacteriological Laboratory is to Doctors; from it may emanate all designs of roads, structures, irrigation schemes etc.

4. Secondly, in the welter of routine duties everyday, particularly in the zone of administration, it is extremely important to keep the young engineers alert and up-to-date information conscious. This is only possible by building up divisional libraries with standard books and more important still, well supplied with the latest engineering magazines which should be circulated to reach even the sub-overseers.

What is the use, I submit , of pumping a lot of high faluting information and knowledge in Engineering Colleges, if at the end of five years of complete ignorance of latest methods in engineering , the average bright student, even a first-class one, is converted into no better than a mainstiry? this comes about simply because no opportunities are thrown in their way to garner information via books and magazines. I understand that there is provision made for the purchase of books and magazines for Executive Engineers but most of whom seem to have lost trade of it.

5. My third suggestion is that the young engineers should be encouraged to prepare and read technical papers either on design or construction before professional institutions. This will give a scientific touch to all the work they carry out and nothing is more valuable than criticism of other fellow professionals which normally ensures when engineers meet for discussion. Quite apart from the scientific touch, it enables the young engineer to take the initative in all that he does, to think , independently and above all to develop confidence in his own capabilities.

One of the considerations for promotion among others should be the technical capacity as judged from the papers presented to professional institutions. My belief is that young engineers will more than respond to their duties and responsibilites towards the profession if the right objectives are held before them .

6. My fourth submission is that the P.W.D. should edit a magazine of its own giving personal notes, photographs and descriptions of works carried out all over the province with the technical aspects well emphasized. It should also contain a short

...resting items of engineering and news collated from magazines all over the world. Such a magazine should be compulsorily subscribed to by all P.W.D. men from sub-overseers upwards. Not only that but if it is well run, it could be easily made self-supporting. It should be enjoined on every individual engineer to submit for this magazine short notes on the works under progress, works about to begin and notices about tenders for works projected.

No.946/20391-I

Education and Industries Department,

Bombay Castle, 16th October 1948.

Forwarded to the Public Works Department for information and necessary action with reference to that Department Resolution No. 6775/36, dated 27th July 1948.

By order of the Governor of Bombay,

Sd/- B.R. Jadhav

21-10-48

Under Secretary to the Government of Bombay,

Education and Industries Department.

B.V.P.

No. G R 27/685 of 1949.
Public Works Department
Poona.1. 22 January 1949.

To

The Deputy Secretary to Government,
Public Works Department, Bombay.

Subject:- Training to Class I and Class II Officers in the P.W.D.

References:- Government endorsement, P.W.D. No. 6775/36-B (I) of 13-11-1948.

.....

We must be thankful to Mr. Taraporewala for turning his attention to the P.W.D. and making some useful suggestions.

2. Regarding his remarks concerning the Executive Engineer, I have to say that the Executive Engineer in the very nature of his duties of carrying out the general Public Works in his area, cannot but be a sort of jack of all trades and cannot but be buried under files of papers. True, this is a sad state of affairs, but it is inevitable. Though he puts in a year or so in a design office, even as he has put in quite a no. of years in an Engineering Institution once he gets into the normal P.W.D.work, he will soon get lost in the routine, in which he must do well, if he has to be retained in service, let alone for the sake of promotions. Therefore, as far as can be foreseen, it must be accepted that the Executive Engineer of the future will also have to be a jack of all trades.

3. The Executive Engineer as a rule need not be a specialist in all the usual Civil Engineering subjects taught in the College and practised in a way in the P.W.D.In fact , all men who take an engineering career may not be so well cut out for becoming specialists. It is enough if the average Engineer can

design works of a usual and straightforward nature and be able to prepare intricate major schemes, with the help of Specialist offices. Such of the Officers who show a flair for theoretical and design work may be given special chances for specialisation and Government may advisedly in due course have a panel of such offices for different branches of engineering and such men may ultimately be mainly taken up in these branches. As is well known, generally these theoretical men are averse to actual execution of work, taking practical and quick decisions , and so on, and in practice they are invariably kept away from practical execution of work, schemes, as they are considered unsuitable. Thus out-door work, in which we may say that the ordinary Executive Engineer is moreof a specialist than the designer, and designing offices should be complementary to each other, and every opportunity should be given for the officers to have experience in both, the degree of experience in the case of any particular officer being dependent on his own bent and on his suitablity. Of course senior officers who have outgrown the needs of having to have experince of design and practical work or such of them who have lost the capacity for further assimilation, should better continue, as far as possible, in the practical or design line, in whichever they are profecient and are likely to be useful.

4. A point which Mr. Taraporewala perhaps has not touched is the availability of opportunities during one's career, both in the designing and outdoor work. It is possible that many officers might not have seen any large works undertaken during their service, with the result they have had neither experience in design (which does not exist when there are works undertaken) nor in actual execution of works . Thelast 20years have been more or less such a period in this Province when

nothing big enough to speak of has been done. It is , therfore, small wonder that Mr. Tarapowewala sees the poor designing ability or knowledge which his past students display to-day. From within the Department, I can also say that they have generally no executive experiance . In order therefore , to set these matters right and create fair appartunities to the younger generation, it is necessary that there should be a long range programme of public works in the different branchs so as to give a modulated , even flow of them at all times and there is always a big work of each branch of engineering going on in each part of the Province. At present we have experience of spurts of big programmes all to be carried out simulsaneously and in a short time (the result being nothing done on account of the suddenness and daze of such prggrammes on inexperienced men), followed by long lulls of inactivity . I suggest that Government should pay its serious attention to this aspect of the question. If this defect is remedied, there will be a greater possibility of carrying out the works and fulfilling programmes as it will be easier to arrange for finance, men and materials needed for these works, apart from the educational and training value these works afford our officers.

5. As regards libraries, I agree with Mr. Taraporewalla in their usefulness and in that every every Divisional Office should have a tolerably good library, having the books and getting periodical literature really useful and appropriate to it. The Divisional and Circle Officers are given permission at present to purchase books to the extent of Rs.50and Rs. 100 a year respectively. These amounts are small and may be raised to Rs.

200/- and 400/-a year respectively. There is, however, one real difficulty for the Executive Engineer and his staff and that is to find time to read. I suggest therefore a selected man in each of the Divisional, Circle and Secretariat Offices should go through the books and periodicals as they are received and bring to the notice of all the engineers concerned the useful matter in them. I believe this will be more effective than the mere provision of a library.

5. As regards preparing and reading technical papers, Government has already been attaching some importance to professional work of this nature on the part of its officers. However, as matters stand, the average officer, if he is conscientious and sincere in his work, has hardly any spare time for causeries of this nature, particularly when there is no work of importance going on which is really worth elaboration in a paper. Instances are also not uncommon of certain officers devoting a substantial part of the time they should devote to their work to technical paper activities, especially when they know the latter are better appreciated and rewarded. Care will have to be taken to see that the check is exercised in such cases.

7. The idea of a P. W.D. Magazine is good and I wholeheartedly support Mr. Taraporewalla in all that he says about it. Perhaps the magazine may be a quarterly to start with.

Sd/-

21-1-

Superintending Engineer,

Central Circle.

B.V.P.

LIST SHOWINGTHE NUMBER OF PAPERS PUBLISHED

BY DIFFERENT OFFICERS IN P.W.D. AND

COLLEGE OF ENGINEERING, POONA.

P.W.D. Officers.

* Each asterisk indicates one paper which carried a Prize (Medal or Cash Prize as the best paper of the year.)

Names in order of number of papers read.	Number of publications. Bombay Engg. Congress.	Inst. of Engrs.	Other Institutions.	Total.	
C.C.Inglis	6	nil	16	22	perhaps more.
N.S. Joshi	7*	4*	7	18	Publications which cannot be called purely Engineering, not included e.g.,Phonetic Code of Telegraphy.
N.N.Ayyangar	11	1	2	14	
Thiselton Dyar	3	?	?	3	
W.C.L.Trench	3	?	?	3	
= 13 Officers in P. W.D.	2* each	?	?	(13x2)	
+ 25 Officers in P.W. D.	1* each	?	?	(25x1)	
43 Officers in P.W. D.				111	

For name see accompanying list.

Staff from the College of Engineering.

Bharucha .....

Bhawabha Bakirja	3	1	1	5
G.P.Nagarkar	3	2	?	5
J.A.Taraporewala	2*	1	2	5
G.V.Tartak	2	2	-	4
Shivmarayan	1	-	1	2
Graham Smith	2	-	?	2
6 Officers from College of Engg.				25

---0---

Name of Public Works Department Officers who wrote 2 papers each.

Colabawala	Malik
Collett.	Mirams
	Moraes.
Duggan	Parikh H.B.
Gokhale	Sardesai
Haws	Talim
Kent.	Taylor.

Names of Public Works Department Officers who wrote 1 paper each.

Cursetjee	Maddocks	Thomas
Daftry G.D.	Musto	Vartak G.V.
Divtia	Phansalkar	Vaze K.V.
Gordon A.	Pooley	Wright F.
Hore	Ramarao	
Higham	Sapre	
Johnstone	Sohoute	
Joshi G.S.	Shahe	
Kirkpatrik	Shoe-brigge	
Louis	Talati	
Mosley		

B.V.P.

No. G-38 Office of the Superintending
Engineer, Special Investigation
Circle, Dharwar, 26th J--
1949.

To

The Secretary to Government,
Public Works Department,
B O M B A Y.

Subject: Technical grounding of Class II and Class I P.W.D. Officers in designs and planning.

Reference: Government Endorsement No.6775/36-E(I) dated the 13th November 1948.

2. I offer remarks below:-

The report by the Joint Director of Technical Education (Mr.Taraporwala) consists of 3 parts.

(a) It is based on a (mis-?) interpretation of a recent circular by Government. (No.6775/36 of 27th July 1948) regarding training of Engineering graduates before holding Sub-Divisional charges.

(b) It passes certain sarcastic remarks on the Executive Engineers in P.W.D. (based on information obtained from his students.)

& (c) It prescribes certain curses for the disease mentioned in (b) above.

3. Intentionally or unintentionally he has interpreted the Circular and taken advantage of it to create an occassion to write the present letter . Perhaps the Joint Director of Technical Education is under the impression that the said "Training " of candidates was intended by Government as mainly theoretical i.e., in Technical "Designs or Planning" Actually the Government Resolution aims at Practical training which may best be described to suit his own description, as the "brewing" necessary to turn

graduates in Engineering into Robots? and to make them fit later on to posts of Executive Engineers while in the P.W.D.(and perhaps of ~~prestive-Engineers~~professors in the College of Engineering as need be).

4. As stated by him, his description of Executive Engineers in P.W.D, isbased upon his contact with the smallnumber of his disciples, who after a long service as Deputy Engineers had been appointed as Executive Engineers recently. It is not known whether he is in touch with the Designs Divisions of P.W.D.or has intentionally connived at their existance.

5. Whatever that may be , his description, will equallysuit officers of other Technical Departments under the Government of Bombay like the Agricultural, the Medical and the Veterinary. I have met Directors and Assistant Directors of Agriculture, Civil Surgeons and administrative officers in the Veterinary Department and they all agree that they have been turned into "Robots" Probably the Joint Director of Technical Education is not in touch with these other Departments as that fact alone could explain his proposals for "Rejuvinating " the P.W.D.only .

The real explanation of allthis misuse of highly qualified technical hands, willl require criticism of G Government machinery and as that is not likely to be invited much less appreciated-all that could be said is that Government has maintained and pays this highly qualified technical staff, for such use as they may want and if one can make out from recent trend the present need of Government is utilityto administrative heads like the Collectorof the District and other security services. It is only by a revolutionary change in the outlook that technical hands willhave scope for technical work and freedom from the heaps of papers in which the Engineer, the Agricultural expert and the doctor is at present literally buried.

6. Mr. Taraporewala has probably considered it more discrete to stop at criticising the Executive Engineers only and leave off officers of ranks equal or higher than himself e.g.the Superintending Engineers and Chief Engineers. But if hew were speaking as fearlessly, he would have said that the Superintending Engineers and Chief Engineers are "Fully brewed" and made " Innocent of Technical knowledge of a high standard", before they could aspire to these posts.

7. My special intention in recording the above is to point out that -

(a) there are in P.W.D. officers and posts (big highand low) where technical study and knowledge of a high standard exists but unfortunately work done there or in highly technical direction is not appreciated .(not to speak of being encourged). In fact such officers are more often than not put down , discouraged and generally speaking, neglected by their seniors .

(b) This is equally true of other Departments and the criticism levelled against P.W.D.only either evinces want of touch with the technical machinery of Government in other Departments, or some special grudge against P.W.D.

(c) Judging by the standard of many of the past and present staff of the College of Engineering Mr. Taraporwalla should have been honest enough to at least criticise them as he can not plead ignorance of that institution, instead of making the P.W.D. alone his scape goat.

8. If a proof of what I have said in para5and 6 above is needed, I need only refer to the very test which the Joint Director of Technical Education has offered as a cure— I mean the Publication of technical papers.

A study of the list of Superintending Engineers and Chief Engineers and Principals professors in the past twenty years will show that out of the officers who wrote the largest number of Technical papers, practically none was promoted to the Highest ranks available to P.W.D. officers in those days. I need only quote 2 very prominent examples.

Name	Nom.of papers published .	Office aspired
(1) Mr. C.(now Sir Claude) C.Inglis	22	(a) Chief Engineer (b) Principal,College of Engineering and later . (c) Superintending Engr. (d) C.P.H .E.
(2) Mr. S.S. Ayyangar	14	

Conversely it can be stated generally that officers whether of P.W.D.or of the College of Engineering who were promoted to ranks aspired , had either never written or published ~~on ranks~~ ~~(or idle had some solitary paper~~single Technical Paper ~~or if he had some solitary paper to his credit in~~ (or if he had some solitary paper to his credit in an exceptional case, it was probably written by his assistant, only corrections mostly in non technical pharseology being made by him) or never even taken parts in discussions at the meetings of Bodies like the Bombay Engineering Congress or the Institute of Engineers (India or Bombay Centre) or the Indian Road, Congress, not to mention bodies like the Indian Science Congress. As a person who has attended the meetings of those bodies for over 20 years before now, I can quote names of several Chief and Superintending Engineers (and also Principals of Colleges and Professors of Engineering) who attended those meetings,(as they got T.A. for it) but who never literally opened their mouths there. I give below

a statement to give relevant information.

Statement showing

(1) Number of Chief Engineers in P.W.D.(Bombay Excluding Sind)

(2) Technical Publications by them.

(1928-48) and (1944-48)

Period	No.of officers who rose to the rank of C.E.in the period	TotalNo.of technical publications in the name of allof them put together throughout their services.	Number out of those in columns 2 whoread at least one paper each.	No.who did not publish a paper or even took part in discussions.
1928-48	14	5	4	10
1944-48	6	1*	1	5During the curred at 5 years. 1944-48.

(* Mr. W.H.E.Garrod)

These will show what value Government attach to the writing and publications of Technical Papers which at least indirectly indicates the standard of technical study. It is is obvious that Chief Engineers were selected in the past not by their technical work and technical knowledge but mainly because of their administrative work. In fact it is the experience of officers who have published superior-offic several technical papers that but for one or two exceptions , superior officers looked upon such writings as an unavoidable nuisance/On the other hand one can record several instances of discouragingacts which ranged from neglect to harm as a reaction towards publications. Officers who gave any direct encouragment were non-existant.

. The only explanation is that importance is attached by Government to administration only and development of technique is considered subservient. That may perhaps be due to the duties of Chief Engineer and Secretary being vested in the same officer. It remains to be seen whether conditions change when C.E.'s will not be secretaries to Govt in P.W.D.

10.Nor can it be said that the P.W.D. alone could be blamed for this. That Department is sandwitched between Government (Administrative) and the College of Engineering. The attitude of the former is described above and to some extent at least be justified as after all Administration is to be carried on. But the latter too evince the same attitude as could be seen from the very selection of students seeking entrance and the test to which they are put before admissions into the College. The applicants , are screened through fine mesh-sieves, like the knowledge of English , the General knowledge, viva voce, parentage, sports and the like,which effectively drops out the more intelligent mathematicians and scientific brains. The tests are of a type that allows only the well- dressed , smart and ready witted applicants to be selected and many good hands who would shine are to be refused admission. One can not deny that the selection is quite in keeping with the non-technical use of the graduate in Engineering that is required in P.W.D. or the Educational Department as described already, whether as an overseer, a Deputy Engineer, an Executive Engineer or a professor or Principal or still higher ranks.

11.As stated above, there is at least some justification for want of Technical publications by officers in P.W.D., as they are expected to devote themselves to administration, by their employers (Government).

Conditions in the College of Engineering are different . The staff there have nothing but technical

Work to do. They have long vacations and suitable surroundings for writing technical papers, and yet how many Principals and Professors have exerted in that direction? The percentage is, if at all, much smaller that in P.W.D.Promotions from lecture-ship to professorship and from Professorship to Principalship or appointments and selections of Professors and Principalship had little relation with publications or even the standard of Technical Knowledge.

In short, the conditions at the "Alma Mater" the College of Engineering are, if at all, worse than in the Public Works Department.

12. It may not be out of place to record here that even the University of Bombay (semi-Government Institution and which has a Board of Studies with Principals and Professors of the College of Engineering) to hardly if ever, has encouraged or given recognition to technical publications in its Engineering Branch. The attitude there also is discouraging and destructive instead of being constructive or helpful. Perhaps in their opinion papers thus published were not of sufficientlyhigh merit-In this connection, it may be recorded that some of these papers were declared as the best amongst all those published by Provincial and All-India Institutions and were given prizes and medals!!! The papers were thus recognised as the best in the Province and the Country. In case the Board of studies wanted a higher standard, the University should have requested the members of its Board of Studies to write papers of the standard they need wanted and thus set an example to others.*

FootNote:* The University authorities themselves have never cared to find out why was it that some

Foot Note continued-
in the Engineering branch appeared or passed Ph.D. or D.Sc. when the Agrl . faculty had dozens of them . They should also have compared the standard of publns. recognised in other Depts. of the same University?

After studying the diagnosis as explained above, any open -minded person would agree that the disease is not only deep-rooted but inherent in any administration (one would for example like to know what publications worthy of the name have emanated from Engineers outside the P.W.D.?) . If, however, the Administration itself find that high technical knowledge is essential, the disease will need a radical cure and not a stitch here and a stitch there. It is only by the problem being tackled at ministerial levels that a solution is possible (if any is required in the opinion of the employers (Government) Direct encouragement and recognition of work by restricting promotions by the formation of ministers can alone help. Any applications of ointments like technical libraries and P.W.D . magazines will only help to allow the disease to grow hidden under the skin.

Having explained the diagnosis, I now offer below:-

(A) my remarks on each of the four suggestions made by Mr. Taraporewala,

and then pass on to-

(B) a few suggestions in the right direction in case Government really feels that technical Development was necessary if not essential and wish to encourage the same.

1%.Remarks on the 4 proposals by the Joint Director of Technical Education:-

(A) that P.W.D. should open a central designs office any at Bombay:

The Public Works Department has already got-

(a) a separate Executive Engineer forDesign and (b) a separate Executive Engineer for Buildings

Regarding designs of canals too the Government of Bombay had once got-

(c) a Superintending Engineer for Canals & Roads & (d) a Chief Engineer for Reconstruction.

When (c) and (d) existed, the Public Works Departmenthad already got the full fledged Central Designs office on the lines suggested by the Joint Director of Technical Education. It is true that the Chief Engineer had also some construction work all allotted to him, but even so his was mainly a designs branch.

Government thought it fit to close down the Chief Engineer's office, as soon as Mr. C.G.Kale resigned and I presume they did so after consultation with and advice from the top-ranks after forming a mature opinion. It, therefore, appears somewhat improbable that Government will reopen it in that form or under some change in name like "the Central Designs Office", unless there has since come to their notice some new reason unexplored before.

Personally I think it is not desirable nor possible to have a "Jack of all trades, Master of nothing"designs office too. It is best to separate the "Irrigation Designs" from the "Bridges and Buildings Designs". The amount of work involved in the latter is generally limited and can be coped up with by the existingorganisation.

(1) Superintending Engineer, Bombay Circle.

(2) Consulting Architect.

(3) Executive Engineer, Buildings.

& (4) Executive Engineer, Bridges.

The Irrigation works , however, do require a separate designs organization. A change in choice

of site of a dam and an incorrect design of canals makes a difference of crores of rupees in a single project-unlike in the case of bridges and buildings.

I, therefore , very strongly recommend the creation of an office of

(A) "Special Chief Engineer for Canals and Irrigation"

He should be allotted work as under:-

(1) Irrigation Dams and Canals -Surveys, designing and planning;

(2) Collection & Collaboration of Irrigation data.

(3) Hydro Dynamic Research.

(4) Soild & Sub-Soils, drainage and under-ground water supply: research and designs;

and (5) General advice to local Superintending Engineers who will carry out and supervise actual construction-particularly for changes in designs.

But for this , Government have to depend upon a Committee of3 or 5 to advise the Chief Engineer (Irrigation). I do not think such a committee working occasionally has in past or can in future work properly and in any case ,shoulder the responsibility.

An additional Chief Engineer for New Irrigation Schemes (Canals and Dams) is what is needed. He may have designs only but there should be no objection to his also dealing with construction also.

(B) Library and Magazines:-

It will be considered most cruel of me if I write sarcastic remarks about the proposal for opening a new library but I cannot help it for more reasons than one.

Firstly, I wonder whether the Joint Director of Technical Education has seen the library of the Poona Irrigation & Research Division. This contains quite a

large number and upto-date books on Irrigation. The P.W.D. Secretariat library too has got recent books on designs and it is always being replenished by new ones. (This is in addition to old and out of date books).

It is open for him to suggest the names of books he wants and the Public Works Department secretariat will certainly purchase them and also the library of Irrigation Research Division. What more does the Joint Director of Technical Education want ? In any case, it will be interesting to find out how many officers have occasion to make use of the books in these existing libraries before launching upon a scheme for a new library. A careful search may reveal that many of the books purchased or being purchased, were probably never opened or are not likely to be opened.

The same thing about magazines. Mr. Taraporewala wants that even a sub-overseer should read magazines. I fear Mr. Taraporewala must change his ideas about the "3-month" course sub-overseers. This coin produced at the College of Engineering under the direction of the present Director of Technical Education (and the then Principal of the Engineering College) has proved to be an utter failure, and this was the experience of nearly all the P.W.D. high officials as explained at a recent meeting under the chairmanship of the Hon'ble Minister for Public Works himself. But leaving apart these sub-overseers and the possibility of their reading the magazines, it will be useful to find out how many out of the Chief Engineers and Superintending Engineers (and also Executive Engineers) have time to and in any case, actually read the magazines being circulated at present ? Similar information about the Principals,

Professors and Lecturers at the College of Engineering too will be very useful .

As said above , the officers in P.W.D. are "made to order" to suit needs of Government, and they are selected from the entrance into the college to the highest posts mainly by administrative qualifications and not by only Technical knowledge. Unless that basic idea itself changes, mere circulations of magazines and purchase of books willbe waste of money.

(C) Writing of Papers :-

To allow remarks under this head to be appreciated properly I attach herewith a list showing number of papers published by P.W.D. officers at the Bombay Engineering Congress --- an institution sponsored by Public Works Department.

It willbe seen from this that while there can be no two opinions about encouragement to writing of papers and publishing them at recognised institutions and the mere suggestion that such publications should form one of the considerations for promotion is far too indefinite to be effective . Unless the very attitude of Government changes i.e., unless and until great importance is attached to these activities by Government at ministerial levels , little willbe achieved.

Even now, writing of papers is said to be a consideration in promotions and yet what is the result ? Even the Public Service Commission ask for list of papers published . From my experience I do not think they attach any very great importance to that.

Had it not been so we would not have seen the sight of the topmost ranks in P.W.D. not having a single paper to their credit or contribution even in a discussion on any paper. On the other hand, officers to whose credit goes the largest numbers of technical publications (Inglis and N.N.Ayyangar are typical examples) were not guilty when selections were made for higher ranks. Then

Government did not find it necessary to attach any importance to this useful art and industrious habit, , how can one infuse enthusiam in the officers in the Department to develop it !

In my capacity as Secretary of the Bombay Engineering Congress and the Institution of Engineers and some other technical Institutions, I tried to induce several young B.Es. (fresh from the College and also those who had spent some years in P.W.D.) to write papers, but the response was poor. Exceptions were few.

(D) Magazines conducted by P.W.D.:-

It is good that the Joint Director of Technical Education has carefully deleted " serious Engineering " from the contents of the proposed magazine! With the weeding out of such matter the magazine will certainly be" interesting " being comparable to College magazines. Being compulsorily supplied to every officer high and low it will also be "self-supporting " ; the expenditure incurred against printing and editing of the magazine will be charged to the head "General Administration of Public Works Department." Further the revenue from the compulsory "Advertisements of notices for tenders" will leave a surplus (profit). Every Executive Engineer will, I presume, be required to publish every notice in this magazine and pay for the same from his contingent expenditure. The magazine is then bound to be paying and yield a good dividend. This unique method of showing the magazine as "self-supporting and paying" is worthy of study at the proposed "Central Designs Office" !

However, leaving the misleading arguments about the magazine being self-supporting, I support the idea of a popular magazine on condition that it is published in regional languages (Kannada, Marathi &

Gujerati) or in the all- India language viz. "Hindi". Then alone will all understand it. The magazine should also fill-in-the fill in the present need of postings and transfers of officers and sub-ordinates in P.W.D. as the Bombay Govt. Gazette does not admit of notifications by Superintending Engineers and Executive Engineers.

It is only by publisheing in regional or Hindi languages that the magazine will be read not only by officers, sub-ordinates but also by ministries and mustering Karkuns (who are far more useful than "the tinned products of the Engineering Colleges) viz., the sub-overseers whose only advantage over the Ministry and Ministry-and-H Mustering Karkuns is his knowledge of English and not of Engineering). Actually, I do not understand why on the-s the same analogy, should the other Departments under the Government of Bombay should not have a magazine of its own. If similar methods are adopted they too can be made self-supporting and paying.

14. Summary.

The English saying "four walls do not a prison make " can aptly be applied to the four propo-sals of the Joint Director of Technical Education. If appreciation from Government for real science and its development were visible, the whole pattern of P.W.D. (and for the matter of that other Departments like Agriculture, Forests, Veterinary and Medicine) will change automatically. But a reatrospective study of what happened during the past twenty years (both before and after 1946) will show the exact opposite. Officers in P.W.D. recognised as of all- India renown were refused to be promoted to the rank of Chief Engineer and mere ad-ministrators were thrown up instead. Complete divorce from technical publications or discussions did not preclude exclude from. publication of papers has been not only not encouraged selection to high posts Technical work like but actually discouraged. Officers who had no university degree or did not undergo any subsequent training in designs were chosen

to the highest ranks And why was this so? . because the pattern of Government (Administration , fund such hands more suitable for their needs They alone are popular with the "steel frame ".

15.Conclusion:-

The four proposals of the Joint Director of Technical Education are like cement pointing the joints in walls built out of unburnt (raw) bricks. So long as Government consider the hihgly trained technical staff of the order of Executive Engineers as more or less help mates m tes of Collectors and the Public Works Department as subsidiary panels the "steel frame" such superficial applications of ointments like Libraries and Central Designs organisation will not cure the deep-rooted disease. After all Government (conducted by the Steel frame Administration) pay for the job they need and an officer whether in P.W.D.or in other branches has to listen to and follow " HisMaster's Voice ."

I do not understand why the Joint Director of Technical Education has chosen the Public Works Department only for criticism and cure. The Agricultural, Forests and even the non-technical Departments too are open to the same a argument. The I.C.S. (I.A.S.) who owed his selection to his poetry, literature or mathematics, forgets it all in a few years after entry into the Revenue Department Why is it we do not enquire regarding the literate pursuits of these officers or take them into account & in giving promotions ?

The selection of P.W.D. for criticism is sure leave an impression that that Brachonly was rotten . Actually others are no better and require equal if not more radical cures .

Accompaniments:

2 lists. Sd/-

Sd/-

Superintending Engineer,

Special Investigation Circle.

S.V.P.

No.14920 of 1948.

Office of the Ex.Engr:

Surat, dated November1948.

To

The Superintending Engineer,

South Gujarat Circle,

Surat.

Subject:- Training of P.W.D.Personnel.

.....

With reference to your letter , No.88 dated 10-11-1948 I whole heartedly endorse the suggestions made in the letter. However I would like to add as a under:-

(i) All important journals should be subscribed to and given to each Division as also an upto-date library .

(ii) Important designs and technical notes of officers (whatever grade) may be circulated to all for remarks and note. This will keep every one upto date & more keen to be perfect.

(iii) The staff must go through certain stages in their charges, i.e. lighter medium and heavy. Of late, this is not being strictly followed as before so that light charges are sometimes held by very senior persons and thus do not allow proper Growth of younger officers.

(iv) All our foreign embassies should have Engineers attached by rotation so that the best technique from foreign countries can be made available to Government from time to time (so also between provinces.)

(v) Each good book prited in the world must be made available to each Division by keeping our embassies very alert.

(vi) All Major Schemes in other nations tob be

under known in technique etc. to officers.

(vii) More and better clerical establishment is necessary to keep officers free from daily routine esp. of insignificant type. Due to shortage and trade union mentality officers have to do even mechanical work in office correspondence.

(viii) With All persons must be given opportunities on equal basis and not on nepotism.

(ix) With our great country independent, Government should keep Engineers as the main pillars of administration rather them the hard to progress administrations of Civil Department. This will give Government, open and clear opinions and drive in development etc. Engineers possess a better sense of reality, visualisation and organisation.

Finally it need not be added that to allow Engineers to blossom to country's great future, Government must real their faith in their creative genius and not always criticise of 'wasting money' policy which suppresses one's natural development etc.

Sd/- D.C.Borkar.

Executive Engineer, Surat Dn.

True copy.

Sd/-

H.C.to

S.E.S.C.C.

D.V.P.

No. 73 of 1948.

Executive Engineer's Office.

Broach, 19th November '48.

To,

The Superintending Engineer,

Southern Gujarat Circle,

Surat.

Subject:- Through training to Class I and II Officers.

Reference:- Your office No. 88 of 18-11-1948.

The following are the remarks offered by me:-

Suggestion No. 1.

All Engineers serving in P.W.D. are usually qualified and possess sufficient knowledge that is necessary in the day to day routine work. Therefore, it is hardly necessary to import every, high designing knowledgeto all concerned in an acsadamic manner. It willbe better if a specialised brach of designs is open ed and personal with a special designing test are train ed and utilised for helping the Department.

An ordinary Engineer is quite capable of discharging his technical duties but what we are supeering from is the waste of technical man power, i.e. doday as engineer intoutine service works ,. More or less is like a technical Head Clerk and hardly finds scope for applying his technical knowledge.

So what is really necessary is to relieve the engineer of office routine by division of technical and non technical work. To enable him to divert more time to technical work.

Suggestion No. 2:- It is an excellant suggestion.

Suggestion No.3.:- The Suggested is very valuable and will add considerably to the General knowledge of engineers as a Class.

True copy
Sd/-
H.C.to S.E.S.G.C.

Sd/- T. D.Desai.
Executive Engineer , Broach Dn.

No. 685 of 1948

Mahi Canals Construction Division

Baker 4 December 1948.

To,

The Superintending Engineer ,

South Gujarat Circle,

S U R A T.

Subject:- Training of P,W.D. Officers.

Reference:-Your No. 88 dated 18-11-48.

The Views expressed by the Joint Director of Technical Education are thought -provoking and have come more to soon. He has however dealt with only m on one aspect of the problem viz. making goood certa ain deficiencies i.e. adding something which is lacking at present .The other aspect Viz. removing certain defects also require to be considered and I am taking the liberty to invite attention to thee these after commenting on his views.

2/- I very fully agree with sub-para 2 of the Joint Director's letter. It would have been very useful, however if he had analysed the faults in th the the organisation mentioned by him which render a brilliant and selected engineering graduate affec ets within 10 years of his joining the P.W.D . and make him a signature As an unbiased outsid de observerp he might perhaps notice faults which go unnoticed by us because of one very nearness.

3. I cannot fully agree with the views in the sub para 3 of para2. While experience in a design offic ce is essential, I think, it is no lesss necessary to have field experience also. Perhaps the best way would be to have a sand which course, say first six months outside followed by six monthsin the design office. This would give the trainee a much firmer g grasp as he would co-relate his designing to his outdoor observations.

4. When sending new-comers for outdoor training sight must not be lost of one very important consideration* In the past the trainees have been generally posted where some important works were going on without taking into account the capacity of the officers under whom the trainees were placed to impa t technical knowledge. It will be agreed that not every officer is a good teacher hence only those who are, should have trainees posted under them and they should also have enough time to devote to the neweomers.

5. A central design office, as mentioned in para 3 if staffed with an adequate number of right type of officers and subordiantes (see para 18) would be of great benefit . A great deal of time would be saved and the technical standard of the plans and estimates would improve quite appriciably. It must have men on its staff who have worked in various parts of the province and who are familiar with the conditions and materials in each locality. It is believed that the railways have central design officer and that the arrangement is working satisfactorily.

6. The work done in the central design office would however be dependent upon the accuracy and adequacy of the field data supplied to it hence for all projects requiring survey, it must have its own survey parties of experienced men properly enquiped with good surveying indstruments , tents -jeeps etc. These men must be paid adequate field allowances forthe extra expenditure on account of maintainingtwo establishments, as well as the extra expenditure incidental to such moving life. (ii) hard life and inconvienoes they have to undergo This proposal may appear to be expensive but if the projects are taken up and completed in turn and not all simultaneously, such staff required would not be large, The main point is to have a long range programme and not to abandan or hold in abeyance a project which is once started. When we consider the extra staff attached at present to each regualr divisions and there

comparatively smalloutput I think that in the long run the proposed separate staff will prove more economical.

7. The central design office would be dealing mainly with projects of orginal works, Estimates for special repairs , additions and alterations, imporvements to existing structure etc would still require to be delat with by the regualr divisions.

8. Not only may new trainees be posted to the design office but senior officers who has a liking and aptitude for design(vide para 18) but who, as a result of continuous submergence in office routine have lost touch with recent developents may also, with great advantage get a "refresher course" in the central design office.

9. I agree generally with the remarks in para 4. However as the rules stand at present. Executive Engineers are not empowered to subscribe for technical journals. Secondly it is not possible to keep the divisional office library even tolerably upto date with the meagre grant of Rs. 50 per yewar availeble for purchasing books. Technical books costs good deal at present and most of the libraries have fallen so far behind the requirement due to insufficient attention in the past that the number of books to be purchased is large. It would be therefore necessary to give a special grant of not less than Rs. 500/- to purchase a large number of books and to increase the normal annual grant to say Rs. 150/- when a new book of outstanding merit is published it would be a good idea if Government were to purchase the requirednumber for all P.W.D. libraries at wholesale rates and then send a copy to each library .

10. More than the divisional office libraries it is necessary to enlarge the libraries in the Secretariat

and in Superintending Engineers Office . Sendby books from these libraries (Especially the frame) should be free available to any officer of the department down to the rank of an overseer without red tape (such as applying through has superior officers which procedure causes so much delay as to be of no use at all when a book is urgently required). For this purpose it is necessary to have full time graduate (B.E.,) librarian in the Secretariat. This libabrian would keep himself in touch with the latest technical literature would also be able to guide P.W.D. officers as to where infomration on a particular subject may befound. He would also bring the catalogue of books in the Secretariat library uptodate so that fresh copies can be printed and supplied to the Superintending Engineer, Executive Engineers, and Deputy Engineers. The Central Board of Irrigation, Simla has n extend library properly indexed and issues periodical abstracts. We can work on smilar but more modest lines. Reviews of important books and article can be given in the proposed P.W.D. Magazine .

11. At present technical journals received in the Secretariat are circulated to the Superintending Engineers but the Executive Engineers and Deputy Engineers have no opportunity to read such periodicals. It is suggested that the Executive Engrs: may be permitted to subscribe at least two of three technical magazines which they may circulate to then Deputy Engineers which the Superintending Engineers may subscribe to some other which may be circulated to the Executive Engineers.

12. I agree with the views expressed in sub para 1 of para 5 but not with those in sub para2. As every Engineers is not likely to get equal apportunities to be in charge of worksabout which technical papers could be written, the proposed into criterion would not be a fair means of comparing them abilities.

13. I agre with the views in para 6 . In the first instance the magazine may be six monthly.

14. Having remarked on the views of the Joint Directors. I venture to comment on certain other aspects not touched by him. What are the reasons which cause a brilliant young Graduate to become effete within 10 years of jointing the P.W.D. and lead to designing at Sub Overseers level? Some of them as they seem to me are:-

(i) Emphasis on incurring maximum expenditure.

(ii) Extreme amount of routine disproportionate weight attached to and red tape.

(iii) Not putting the right man of the right job

(iv) Lack of sufficient incentive and lack of sufficient encourage-ment to those who propose new ideas and suggestions etc.,

(v) Lack of research and fear of failure or trying new ideas in construction.

15. There are no hard and fast rules about judging the ability of a P.W.D. officer, but one important and traditional criterion is his ability to carry out of works. On principle no exceptions can be taken to this but in practice, this ability is judged by the amount of expenditure incurred on works. The greater the progress on expediture, the more competant the officer considered. Now it is the contractor, who is mainly and primarily responsible for the progress of a given work. But so great is the fear of being considered incompitant if there are are lapses of funds at the end of financial year, that it is the common practice to record "Advance" measurements of the work yet to be done and pay the Bills before 31st. March, and there by incur the required expenditure. This amounts nothing, less than recording false measurements, and the remedy is far worse than the disease. The Contractor knowing the plight of the P.W.D. Staff take full advantage of the situation, Again all tenents are

generally late in the year and at any attempt to improve upon the Plans and Estimates (Usually hastily, and imperfectly prepared), interferes with the incurring of the expenditure and is therefore strongly discouraged. To give a concrete example, as a Sub-Divisional Officer a Minor Original work was carried out by me some years ago near the end of financial year. The estimate which was not prepared by me provided for the excavation of a small drainage channel for a storm water, and the alignment shown on the Plan was technically unsound and needlessly costly. By shifting it to a valley line, I was able to save an appreciable percentage of the cost. (Though the actual amount involved was very small) and the work was completed in time before the end of the financial year. Disregarding the facts that the Government money was saved without delaying the completion my explanation was asked for not surrendering the saving in time, (with which estimate.) If the work had been carried out as per estimate and Govt. money wasted, I would have got the credit for spending the full all tenents. This example which is unfortunately not an isolated one, shows what little incentive there was for utilising technical skill in having better and more economical construction though an engineer is supposed to be a person who can construct a structure in say Rs. 800/- where a layman will spend Rs. 1000/. Today perhaps there is more appreciation for more economical and technically sound design. Even then, as much advance can not be expected, as long as we do not shed out expenditure complex.

16. Since the World War II, there has been an enormous increase in work and yet owing to expansion there is extreme dilution of the staff consequent in efficiently. Formerly each regular Divn. had generally that to 4 Sub Divns. To day the number is six to nine. There is an enormous increase in the numbers of statements returns etc

(Blank spaces are kept because certain part of the page was torned.)

etc. to be submitted much of this additional work may be inevitable due to changed circumstances, an appreciable part of it is perhaps not strictly essential and therefore avoidable. In spite of this, officers especially executive Engineers are required to made through and sign a mass of account and other routine papers of comparative ~~especially Executive Engineers~~ who is now more or less a glorified clerk at present it so be remade into an Engineer, he must be relieved most of such needless routine . If the present audit rules do not permit, the rules must be modified and the divisional accountant and the head clerk (in the first Divisional office) ~~must be made~~ and the Sub-Divisional clerk(in the Sub Divisional Office) must be made responsible for major portion of such routine Concrete proposals to reduce routine have not been made as this is outside the scope of the present reference but these will be made of required.

17. (iii) The department in felling the shortage of ~~technical~~ technical staff acutely . It is therefore necessary to ensure that whatever staff there is put to the best possible use i.e. each man is put where he is most suitable . This leads to the question of specialists versus all rounders. So far we have been all rounders but the result have not been very satisfactory. It is therefore time to give a fair trial to the other system. After say five years service ees in the departmentduring which he is given opportunity to have some expereience of each branch on Engineer shd ld be given the chance to select his branch ~~on branch~~ as far as practicable . If it is found that the majority want to go to one branch say Irrigation any d avoid say words there may be some reasnson and steps can be taken to make all the

branches equally attached attractive.

18. Again it is not merely a question of a most man becoming specialist in say irrigation another in building a a third so on. The work in each branch fit categories (a) designing (c) Maintenance, routine and of Engineers like wrious directions. Some so good in routine others but not so suitable for put in a sphere for aptitudes he can turn square pay in round

It should not be difficult to find out the best ~~out the best~~ job for each man for applied psychology has made sufficient progress to help in this . It is said that aptitude test tests were successfully applied in selecting officers for the army during the War. Even if we cannot do anything more, we can ascertain from each officer which of the three main type of work should suits him most in his opinion.

19. With the passage of time conditions and circumstances changed Rules, procedure and methods established years ago therefore requirement to be modified, cancelled or replaced from time to time. But such changes may suggest themselves to anybody from the lowest clerks or karkun to the highest officer. The clerk or a krkun however hesitates to make known his idea because he knows by previous experience that there is little likelihood of any action being taken on it. Most of such proposals require to be approved by the Government or high Officers and have therefore to be resubmitted through "the proper channel" Any one who has tried to negotiate his suggestion through this narrow and diffifucult channel knows that it is almost impossible and so many valuable ideas never reach their destination. This discourages constructive thinking. To overcome

this , I would suggest that every member of the Department whether technical or clerical should be some encouraged to think of any improved Method whether pertaining to construction or office procedure by being permitted to bring his ideas to the notice of the Government , or the officer concerned directly and not through the "proper channel" It is true that most of such suggestions especially from down lower establishment may prove impracticable but even if only 1 or 2% are suitable for adoption. It will be worth while to do so .This would mean some increase in work for the office concerned for the time being but the time would be wellspent .

20. (V) In the present days practically every advanced country spends high amounts for scientific, technological and industrial research and their Public Works Departments have their own research stations , laboratories and even mobile field laboaratories . Yet very little research is being done by us and that too is confined to irrigation. I am not aware of any research being done on roads and buildings. Though metal worth thousands of rupees is purchased every year by the P.W.D. throughout the province, to my knowledge there is not a single Deval or other type of Machine for testing metal in any division. Similarly though morter, cement and lime are required for all types of masonary works , there is no testing machine for these. With the help of these tests, we could determine the proportion of lime or cement to sand and surkhi to obtain a given strength as the proportions vary with materials obtained from different sources, quarries etc., If we are to keep pace with the progress in rest of the world, the present rule of the thumb methods will have to be replaced with more scientific ones.(without los -

sight of the practical aspects).

Similarly in buidlings we can try various types of construction especially of atemporary or semi-permanent types in order to evolve more economical types for all these we must immediately start research work in connection with roads bridge Soil mechanics, buildings, materials etc. There are a number of problems to be tackled in each and their successful solution would save the Government much money.

21. Research need not be confined to special Research laboratories though they will be the primary centres of research. Every division has its own technical problems of a local nature and the local officers should be encouraged to tackle them and carry out experiments. At present no officers dares to carry out any experiments because if it fails (as it is quite likely) he would be held personally responsible. There is a great deal to be learnt from mistakes and failures and if experiments are carried out in cases where failure would not use no less. More serious than the money spent on the experiments, the experience gained will be of great help in other cases. It is also necessary to keep a proper record of any experimental work done so that if one officer is transferred his successor can continue his work.

Sd/- B.K.Chokshi.

Executive Engineer,
Mahi Canals Construction Dn.

B.V.P.

No. 385 of' 49.

Office of the Suptng: Engr:S.G.C.

P. W.D.Surat, 28-1-1949.

To ,

The Secretary to Government ,

Public Works Department,

Bombay.

Subject:- Training of Class I & II Officers.

References:- Govt. endorsement No. 6775/36-B(I), dated 13-11-48 and subsequent reminder dated 17-11-49.

The opinions of the several executive Engineers in the Circle are enclosed (copies) for favour of kindly purusal, for I do not wish to oppress them with my own. They are experienced Officers with the required status and it is better Government have them for perusal.

2/- The proposals of the Joint Directr of Technical Education are four in number.

(a) Traning in a Central Design Office for one year.

(b) Building up Divisional libraries.

(c) Young Engineers should be encouraged to write and read Technical papers.

(d) P.W.D. to edit its own magazine.

3/- Now that we have come into our own, I quite agree that much thought needs to be bestowed on the training of the young Engineers and building up an efficient core of Engineers with good traditions and experience .

4/- Some rusting was inevitable in old days when A.M.I.C.E.was difficult thing to get at unless one goes out to England for studies and when the Indian Institution of Engineers and Indian Road Congress were either unborn or in the embrionic stage.

Nowthat both these Indian Institutions

are established and fully developed, I

would suggest that each Graduate Engineer
Class I & II should be compelled to become
an A.M.I.E.(India) , and a member of the
Road Congress; so that he can study the
literature put forth through the journals
of the Institution and thus keep in touch
with the progressive thought in Engineering.
5/- In the training period, apprentice-
ship and probation, which may not exceed
two years , they should spend at least one
year in the Central Designs Division or
an Irrigation Projects Division where all
major bridges or Irrigation works are
designed , allowed to visit sites, study
site selection and the various alternatives
taken into consideration. In office, he
should study books specialising in the
concerned branch of Engineering for
furtherance of his college knowledge,
prepare estimates and compare costs of
different designs.
6/- Antoher year he may similarly
spend in the Irrigation Research Division
for similar study of Irrigation, Hydraulics,
Hydrodynamics, and other problems and the
histories of the Irrigation Schemes in
Bombay Province. Concurrently they may
be allowed to visit the Khadak Vasla
Research Station and it must be arranged
with Central Water Ways Irrigation and
Navigation Commission, that these boys
are allowed to work on their experiments,

study their literature.

7/- After such training, they may be employed in a construction Sub-Division where they have to deal with practical problems on field -sole and also get to know how to handle labour, organise and execute works , for at least three years. Thus trained for the first five years, a proper foundation can e said to have been laid for the new entrants directly recruited .

8/- To keep them abreast in the subsequent life is more dependent on the person's own effort. I agree that the Divisional libraries are meagrely equiped and that the annual grant of Rs.50/- for books , periodicals and maps is very inadequate. It should be at least Rs. 200/- per year to start with and results observed.

9/- Circulation of a standard set of Magazines (to avoid overlapping of information reappearing in other magazines). should be on a Circle basis . Each Circle should have its set, circulated round the Executive Engineer and the Sub-Divisional Officers. Magazines received in the Secretariat should be in the Secretariat Library always for reference.

10/- Regarding the suggestions that P.W.D. Officers should be encouraged to write and scrutinise Technical papers and have a magazine of its own, the present state of Work and expansion is hardly suited for such a move. The P.W.D.

Officers can even now contribute to the local centres of Institution of Engineers (India) or to the Road Congress. Deputations to the Road Research Board to be set up by Central Government and visiting in greater numbers than at present Major air field , Irrigation and Bridge Works of Importance in other provinces during exception should be freely encouraged in addition to the attendance of the Annual getherings of the Institute of Engineers and Road Congress by payment of are T. A.

11/- An Annual P.W.D. week will be another event which has to be introduced both to develop an espirit de core and give opportunity for free exchange of views and information, technical and administrative.

Encl:- 4 Copies) Sd/-

23/1/49

Superintending Engineer,

S.C.C.

Copy forarded w.cs. to:-

The executive Engineers, .

Irrigation Project (N), Ahmedabad.

Mahi Canal Construction Dn. Dakor

Broach Divisions, Broach.

Surat Division, Surat.

S:V.P.

Letter.

From

The Superintending Engineer,
Southern Circle.

To

The Secretary to Government,
Public Works Department,
Bombay.

No. G 31-a Public Works Department,
Belgaum, 7th February 1949.

Subject:- Practical training of Engineering personnel. Suggestions from the Joint Director of Technical Education regarding the :-

References:- Government Letter, P.W.D., Endorsement No. 6775/36-B(I), dated the 17th November 1948.

The Joint Director observes that

(1) The Executive Engineer is a jack of all trades.

(2) Being literally buried under files the Executive Engineer finds very little time for "Engineering."

(3) Most of the designs turned out are done at Sub-overseer's level.

and offers the following suggestions to remedy the defects:

(1) Establishment of a Central Designs Office.

(2) Building up of Divisional Libraries.

(3) Encouraging the staff to prepare and read technical papers on Engineering subjects.

and

(4) P.W.D. should conduct a magazine of its own.

The observations though not completely true have got some truth in them. It is the

organisation and not the person that is at fault. It is incorrect to call the Executive Engineer a jack of all trades simply because he is called upon to execute works pertaining to different branches of Engineering. He is an Executive Engineer and is posted to carry out work of Engineering to whichever class they belong. The principles underlaying the constructions of these works are just the same.

Having to do a lot of table work the Executive Engineer cannot devote himself whole-heartedly to Engineering. Correspondence has of late increased to such an extent in all offices that most of the Officers' time is taken up in disposing of the correspondence. The work of the Executive Engineer can be reduced by taking away from him the work of preparering plans and estimates. This work can best be entrusted to a Central Designs Office as per the Joint Director of Technical Education's suggestion on No. 1.

Establishment of a Central Designs Offices will not only afford relief to the Executive Engineer, but to his lower staff as well. Another benefit willbe that the Designs prepared in the Central Designs Office willbe thorough and more uniform throughout the province.

The other suggestions are also good and need be given a trial. These are expected to increase the efficiency of the Executive staff.

Sd/-

Superintending Engineer, S.C.

B.V.P.

Letter. No,E.181/5880

Electric Chief Officer,

Foreshore Road,

Bombay 1 : 9 April ,1949.

To

The Secretary to Government ,

Public Works Department , Bombay.

Subject:- Training to Class I & II Officers.

Reference correspondence ending with Government letter P.W.D. No. 6775/36-S(I), dated 17-1-49.

2. I give below my remarks on the suggestions made by the Joint Director of Technical Education in para 2-6 of his letter No. A/Eng./2198 dated 16-9-48.

3. The remarks of the Joint Director of Technical Education that most designs in the P.W.D. are done at sub-overseer's level are obviously not based on facts . Works like the Lloyd Barrage, the Sukkur and Bhandardara dams, the various Government buildings, big bridges and irrigation canal systems have been designed and constructed by the departmental personnel and these could not have surely been done at the Sub-overseer's or the computer's level.

4. The routine and maintenance and operation work should not be underrated. Different types of work call for different talent. There are first class construction engineers who are little good at design and several design experts have to be sent to the field to realise the shortcomings and limitations of some of their suggestions. The maintenance and operation (for electric grid) men have also to be good trained engineers. In practice, even a routine man develops certain methods which really belong to the realms of work done in design office and it should be the practice that such methods should be communicated to the

Central designs and through them circulated to the maintenance units.

Strict comparison with foreign countries is not valid because the basic facts are so much at variance.

6. There new schemes and works are taken up with big projects in hand, as at present, central designs offices will be useful. As a matter of fact, some of these are functioining, as for example, the offices of the Electric Grid, the the Architect to Government and Public Health Engineer. Similarly I belive for each major irrigation project there will be set up a central designation as was done for the Lloyd Barrage Project. The necessity is not so pronounced for minor works of roads and buildings. Government may, however, try the suggestion with specific planning so that the central organisation can standardise items like bridges, culverts, buildings, canal falls and regulators etc. etc. dress from the point at which they were left by the Post War Reconstruction Chief Engineer (which office I believe functioned as a Central design office for some time). Coplete specialisation at the same time, I am afraid, may turn the district officers into robots.

7. It would however not be practicable to pass all the recruits through the designs office. The theory taught to young Engineers at the college is not the only requirement for design work. Suitable men would gravitate to design office and outstanding men retained. "Just Good" men will be sent out to the field after a year or two in the design office to apply what they have learnt in the design office to the field work.

8. Library is a capital idea. The recent project activity is likely to lead to filling up the already existing libraries in Divisions. I fully endorse the view that divisional libraries should be kept up-to-date. I would also suggest that there should be a library in each

circle , so that it may be taken advantage of by all concerned and a suitable man should be put in charge of the library.

9. I am in complete agreement with the suggestion made in para 5. Here again when works are in progress, presentation of papers are the normal practice which can be seen from the proceedings of the Bombay Engineering Congress upto about 1930 and the various technical papers published by the department.

10. I am not in favour of the idea of a departmental magazine. At present we have a number of technical journals in the country e.g. the concrete journal, the India Engineer, the Journal of Inistitution of Engineers, the C.B.I. Journal, the Indian Roads Congress Journal etc. wherein there is only occasionally a technically readable indigenous article; we should encourage our officers to contribute articles to these journals. This will also encourage popularisation of the existing technical organisations and improve their finances. If a departmental journal is to be encouraged at all ,it should be issued periodically, say, once a quarter .

11. There are various other things which could be done during the college education and the preliminary training of our engineers to improve the set up .

Sd/-

Electrical Commissioner with the Government of Bombay

B.V.P.

No. 4976 of 1949.

Office of the Superintending Engineer,

N.C.C., Public Works Department,

Ahmedabad, 27th May ,49.

To

The Secretary to Government,

Public Works Department,

BOMBAY.

Subject:- PRACTICAL TRAINING OF STUDENTS AND CANDIDATES FOR APPOINTED TO THE ENGINEERING SERVICES SUGGESTION BY THE JOINT DIRECTOR OF TECHNICAL EDUCATION REGARDING----

Reference:- Government no. 6775/36-B(I) , dated 13-11-48.

I have to submit my remarks as under on extract para 1 to 6 of letter No.A/Engg/2198,dated 16.9.48. from the Joint Director of Technical Education:-

The Joint Director is right in his diagonosis that the "faulty organisation " of the Public Works Department is responsible for brilliant men entering the Public Works Department being rendered effete in barely 10years ' time. But the four remedial suggestions made by him shows that he has not grasped the full implications of the "faulty organisation" . These four suggestions alone , however made effective are not going to solve the problem. The root causes lie deeper still.

2. At present the P.W.D. Engineer is jack of all, not only his own trades but of several others; the most tyrannous of which is Accounts and Addt , for which he is held personally responsible . In the modern complex way of life the accounts system

of any even moderate sized organisation is good enough to demand and absorb the whole time energies of any energetic person. The P.W.D. Engineer is supposed to be superhuman enough to bear the burden of these responsibilities in addition to his other multifarious ones. He is supposed to go have-to-gethrough personally allthe varieties of 1001 returns that have to to be sumbmitted monthly bi-monthly, tfimonthly and all sorts, allthe correspondence that takes place on all sorts of subjects, and also find time enough to think out, plan design and also prepare all sorts of pro subjects,—adis it a matter for wonder then that even brilliant men are rendered effete in ashort time! When no time is left for the P.W.D. Engineers to raise his head from the welter of routine useful and unuseless- in which he is buried more than up to his head, how could any one expect any sound professional workto flow from him, let alone his being uptodate and progressive theroin!

3. That is therfore needed is a complete overhaul of the organisation with a view to enabling our Engineers to devote the best part of their time to Engineering Problems proper as well as leaving them leisure enough to devote some of their time in kepping themselves uptodate with progressive Engineering. Unless this is done and time and leisure for professional ork made available no amount of facilities on the lines suggested by the Joint Director is going to improve the efficiency. The ingredients of such facilities on the lines such as suggested training period , libraries, etc. ,are alrea y there; but it has made precious little difference in the efficiency because of the enormous dead weig t ofthe extra-professional work of the nature hinted in the above para .

4. The re-organisation is not in itself so very easy as it would have reperchussions in all directions The problem needs however, tackling urgently and I would suggest the formation of a Committee of experienced senior Engineers to go through it and suggest ways and means out of the morass.

5. In my opinion the reorganization should be, in broad outlines, on the following lines.

(i) The Department should be divided into two distinct and separate branches viz. (a) Roads & Buildings branch and (b) Irrigation Branch Officers entering service should have only one choice, and, once they make their choice they should be pegged down to it irrespective of any other considerations. No transfers should be made from one brabh to the other nor should they be made permissible.

(ii) The freeing of the Engineer from the Accounts and Audit responsibilites at teached to him at present. A qualified Accountant is attached to every Division and it is he who should shoulder this burden rather than the Engineer. For payments cashiers may be engaged and placed under the Ac ountant or a Divisional Organisation set up for the purpose which should cater for the whole Division including the Sub-Divisions.

(iii) There are a variety of returns due each month. Many of them are not at all strictly technical. The utility of some of them is doubtful and it is a matter for conjecture whether any one goes through most of them or has time enough to go through them. All the unnecessary ones should be abolished and of the necessary

ones the Engineer should be made responsible for the strictly technical ones only and the Head Clerk and the Accountant for the rest.

(iv) Correspondence takes place on a variety of subjects most of which is strictly non-technical. The Engineer should be made responsible for the technial oneand the Head Clerk and the Accountant for the rest.

(v) Duties and responsiblities of the various grades of technical staffshould be more precisely defined than at present. Distrimation between a field executives staff and a projecting staff must be recognised and reorganisation made accordingly. Executive staff should not be burdened with project work if real efficiency isdesired . And the Division of labour should be real and effective and notlike one at present in existence wherein all necessary project data etc. The out-door duty Staff is called upon to supply all necessary The out-dder staffcould do so only at the expense of their out-ddor work. The recruitment to the lowest grade of technical staff viz. , Karkuns shouldbe based on the same lines as that of the higher grades. efx There should be a regular couse of training for this grade of staffand persons so trained and found suitable shouldonly be engaged. The present practice of appointing a rank out-sider whose only qualification is that he knows a bit of reading and writing cuts at the very root of the organisation . So also there should be an intermediate grade of Sub-Engineers between Deputy Engine rs and Overseers to attract B.E., Recruits to grades lower than that of Deputy Engineer. Such a grade would tone up the efficiency of the organisation greatly.

4. A reorganisation on some such lines as outlined above would alonge give time and leisure to Public Works Department Engineers to be Engineers in reality and not merely "Signature Robots" . Once this is achieved it would not at allbe difficult to improve the effeciency

on the lines suggested by the Joint Director. Unless this is achieved no other means , however , well intended, can improve it. I, therefore, submit that the whole approach to the problem should be on the lines indicated above.

Sd/-

Superintending Engineer,

North Gujarat Circle.

.....oOo.....

Copy forwarded , with compliments to:-

The Superintendig Engineer, Bombay Circle,

Bombay, South Gujarat Circle

Surat, Deccan Irrivation Cir

Poona, Eastern Circle,

Sholapur, Southern Circle,

Belgaum Karnatak Irr.Cir.

Dharwar, Village Water Supply Cir. Poona

The Exective Engineer, Ahmedabad Division, Ah Mmedabad R & B Dn.

Kaira Division ,

Banas Kantha Division,

Sabar Kanthe Division.

B.V.P.

Koynalrrgation Circle.

No.398 of 1949. Poona,1: 7th September 1949.

To:- The Secretary to the Government of Bombay,
Public Works Department, Bombay.

Subject:- Training of P.W.D.Officers.

Reference:- Your No. 6775/36-B(I) of
13-11-1948:

The real reason why P.W.D. Officers though they enter the Department with good academical qualifications ~~on routine jobs, where they get no scope for using their~~ get stale after a few years is that they are usually put on routine jobs, where they get no scope for using theirh higher technical knowledge. There should be a deliberate attempt to post fresh class I and II Officers on original jobs of project and Construction for the first 3 to 5 years of their career. Also some of them may be deputed to design offices of private firms of repute for a year or so in their early career. Unless an officer gets opportunities in his workl

2. The suggestion of opening a central design office has its good and bad points. The advantages are that there is a uniformity of designs and also such an office can be used as a training ground for young officers. But if all designs are to be done only in the central design office, the local officers against loose all interest in design work. I think, there shouldbe a created. But any local officers, who wants to put up his own designs should be allowed to do so. Thus, the intiative of those who want to work should be maintained.

3. Also all officers shouldbe allowed to purchase books for their office libraries freely. As for current magazines, a few good ones should be purchased in each division and circulated to all up to Overseers. But my experience is that unless a man

has an opportunity to work out some important designs he looses all interest in ~~that for a normal engineer~~ current literature. Now, there is so much specialisation. That for a normal engineer most of the matter in the magazine is of little interest and many times unintelligible . The proper way of making use of these magazines is just to skip through them, so that you know what subjects are being currently discussed and you are able to refer to such articles, if you get a real problem to tackle.

4. As for technical papers, of course , officers should be encouraged to prepare and read them, whenever they have something to say which will be useful to tohers. But the technical capacity should not be judged by these papers. alone , as many times these papers are imply scissor and paste affairs i.e. there is nothing original and the matter is collected from various books and publications. So, it will be riskly to base promotions on ability to write practical ability of the officer.

5. The suggestion that the P.W.D. should run a magazine is a good one. All works of some importance carried out by the P .W.D. should be described in it so that a good record of such works willbe created and the knowledge of current designs willbe widely dessiminated.

6. Another suggestion I can make is to send out officers in turn on tours of inspection in neighbouring provinces and some may be sent even outside the country. Such tours are of immense value in widening the horison of thinking and any expenses incurred on this item are bound to yield very satisfactory returns .

Sd/-

Superintending Engineer,

Bombay Circle,

(up to 30-1-1949).

Copy with the original case forwarded to the Superintending Engineer, Bombay Circle, for information.

D.A. Original case.

E.E.(I) P.W.D.

Receipt of similar report from the P.H.E. to Court may be awaited. That officer has been expedited in the matter.

Sd/-

7-10-49.

E.V.P.

6775/36
6369

B.B. P.W.D.

The Jt. Director of Techn. Education made certain suggestions reg. the Training of Class I and II officers. The suggestions are briefly as follows:-

(i) that the P.W.D. should open a central design office, say in B'bay and do all the designing work there.

(ii) that young Engrs. should be kept alert and up-to-date information conscious by building up divisional libraries with standard books well sup lied with the latest Engrg. magazines which should be circulted to reach even the sub-overseers.

(iii) Young Engrs. should be encouraged to prepared and read technical papers either on design or construction before professional institutions and one of the considerations for promoton, among others, should be the technical capacity as judged from the papers presented to professional institutions.

(iv) the P.W.D. should edit a magazine of its own giving personal notes, photographs and descriptions of works carried out all over the Province with the technical aspects well emphasized. It should also contain a short resume of interesting items of engrg. and news collected from magazines all over the world. Such a magazine should be compulsorily subscribed to by all P.W.D. men from sub-overseers upwards. Every individual engineer should submit for this magazine short notes on the works under progress, whose about to begin and notices about enders for works projected.

2. The suggestions made by the Jt. Director were forwarded to the local officers for remarks. The remarks of the local officers have been consolidated in the following paras.

3. Regarding suggestion (i) :- The S.E., E.C. (Mr. Karandikar)isof the opinio that there is at present no need to open any more design offices in B'bay or elsewhere. The two Ex. Engrs' offices at Poona and the P.H.E.'s office, as also the Kamagpur Storage Dn. office are enough to answer the requirements of this Province for some condiderable time to impart the necy. knowledge to suitable and selected officers who have still to put in sufficient length of service and who may be deputed in rotation for a specified length of service, in those Dns. The S.E. , C.C., is of the opinion that there should be a long range programme of public works in the diff. branches, so as to give a modulated even flow of them at all times and always a big work of each branch of engrg. going on in each part of the Province so that Engrs. can have experience of both design and execution, the degree of experience in the case of any particular officer being dependant on his own bent and suitablity . It is enough if the average Engr. can design works of a usual and straightforward nature and be able to prepare intricate major schemes with the help of Specialist Officers. Such of the officers who show a flair for theoretical and design work may be given special chances for specialisation and Govt. may advisedly in due course have a panel of such officers for diff. branches of Engrg.. and such men may ultimately be mainly taken up in these branches .

The S.E., S.I.C., states that it is desirable to separate the "Irrigation Designs" from the Bridges and Bldgs. Designs and he therefore recommends the creation of an office or "Special Ch. Engr. for Canals and Irrigation in addition to the Designs Dn. The C.E. it is

recommended should be allotted work as under-

(1) Irrigation Dams and Canals -Surveys, designing and planning.

(2) Collection and collaboration of irrigation data.

(3) Hydro-Dynamic Research.

(4) Soil and sub -soils, drainage and underground water supply research and designs.

(5) General advice to local S.Es. who will carry out and supervise actual construction- particularly for changes in designs.

The S.E., S.G.C., is of the opinion that in the training period, candidates should spend at least one year in the Central Designs Dn. or an Irrign. Projects Dn. where all major bridges or Irrign. works are designed, allowed to visit sites, study site selection and the various alternatives taken into consideration. In office they should study books specialising in the concerned branch of Engrg. for furtherance of his college knowledge, prepare estimates and compare costs of different designs.

Another year may be spent in the Irrign. Research Dn. for similar study of Irrigation, Hydraulics, Hydrodynamics and other problems and the histories of the Irrigation Schemes in Bombay Province. Concurrently they may visit the Khadakwasla Research Station and it must be arranged with C.W. In.N.C. that the candidates are allowed to work on their experiments and study their literature.

After such training, the candidates may be employed in a construction sub-dn. where they have to deal with practical problems on field-scale and also get to know how to handle labour, organise and execute works, for at least three years. Thus

trained for the first five years, a proper foundation can said to have been laid for the new entrants directly recruited .

The El.Engr. to Govt. thinks that the Central Design. Office may be useful for Civil Engrg. Works but in view of the fact that the Central Electricity Comm. has already undertaken to give the necy. assistantance th the Provl. Govt. with regard tc the design, lay-out etc. of the schemes proposed by them, they do not consider it advisable to have a separate designing section so far as Electricity is concerned in this Province.

The S.E., S.C., feels that the Ex. Engr. is at present burdened with a lot of table work and hence cannot devote himself wholeheartedly to Engrg. The work of the Ex. Engrg. can be reduced by taking away from him the work of preparing plans and estimates which can best be entrusted to a Central Designs Office thus affording relief to the Ex. Engr. and his lower staff. The designs thus prepared will be thorough and more uniform throughout the Province.

The El.Commr. is of he opinion that different types work call for different talent. There are first class construction engineers who are little good at design and several design experts have to be sent to the field to realise the shortcomings and limitations of some of their suggestions. The maintenance and operation men have also to be good trained Engrs. In practice, even a routine man developes certain methods which really belong to the class of work done in a design office and it should be the practice that such methods should be communicated to the Central designs through them circulated to other maintenance units. Where new schemes and works are taken up with big projects in hand, central designs offices will be useful, like that of the El .Grid,

the Architect to Govt. and the P.H.E. For each major irrign. project there can be set up a central design section as was done for the Lloyd Barrage Project. This is not so necy. for minor works of roads and bldgs but the suggestion can be tried with specific planning so that the central orgnisation can standardise items like bridges, culverts, bldgs., canal falls and regulators etc. The El.Commr. thinks that it would not be practicable to pass all the recruits through the design office. Suitable men would gravitate to design office and outstanding men retained. "Just good" men will be sent out to the field after a year or two in the design office to apply what they have learnt in the design office to the field work.

The S.E., N.G.C. , is of the opinion that what is needed is a complete overhaul of the organisation with a view to enabling Engrs. to devote the best part of their time to Engrg. problems proper as well as leaving them leisure enough to keep themselves uptodate with progressive Engrg. Unless this is done, no amt. of facilities on the lines suggested by the Joint Director is going to improve the efficiency. The S.E. feels that the ingredients of such facilities like training period, libraries etc., are already there but it has made precious little difference in the efficiency because of the enormous dead weight of the extra professional work of the nature of Accounts and audit, correspondence etc. The S.E., N.G.C., therefore suggests the formation of a Committee of experienced senior Engrs. to find ways and means of reorganising the P.W.D. on the broad lines outlined by him in para. 5 of his letter at pp. 107-108 ante.

The S. E., B .C., thinks that the real reason why P.W.D. officers though they enter the Deptt. with

good academical qualifications get stale after a few years is that they are usually put on routine jobs where they get no scope for using their higher technical knowledge. He suggests that there should be a deliberate attempt to post fresh Cl. I AII officers on original jobs of project and construction for the first three to five years of their career. Some of them may also be deputed to design offices of private firms of repute for a year or so in their early career.

The S.E. reports that the suggestion of opening a central design office has its good and bad points. The advantages are that there is a uniformity of designs and also such an office can be used as a training ground for young officers. But if all designs are to be done only in the central designs office, the local officers again loose all interest in design work. The S.E., B.C., suggests that there should be a compromise on this point. A central design officer should be created, but any local officer who wishes to put up his own designs should be allowed to do so.

4. Regarding suggestion (ii):- The S.E., B. C., feels that the idea of libraries is splendid. The existing small libraries possible with the small recurring grants of Rs.50/- are not enough. Really good libraries, say three in the Province, one at Bombay one in the North and one in the Southern part of the Province to stock standard uptodate books, latest Engrg. magazines, would, be considered, be a very desirable asset. He does not however recommend any circulation of books to sub-overseers. Men wanting to read should be allowed to come, say for 3/4 days in each month to concentrate on study in the libraries within fixed hours. It should be possible by judicious planning to allow a willing officer to go out of his jurisdiction for this intensive study in the Library Building within fixed hours say

at regular intervals averging 3 or 4 days per month (inclusive of Sundays and holidays).

The S.Es. C.C., D.I.C.,S.G.C.& S.C. also agree that every Dnl. office should have a tolerably good library, haivn the books and getting periodical literature really useful and appropriate to it. The S.E.,C.C., suggests that the amt. of Rs. 50 & 100 given at present to the Divisional & Circle officers are small and may be raised to Rs. 200& 400/- a year resp. There is however one real difficulty for the Ex.Engr. and his staff and that is to find time to read. He therefore suggests that a selected man in each of the Divisional, Circle and Secretariat Offices should go through the books and periodicals as they are recd. and bring to the notice of all the Engrs. concerned the useful matter in them. He believes that this will be more effective than the mere provision of a library. The S.E., S.G.C. thinks that Circulation of a standard set of Magazines (To avoid overlapping of information reappearing in other magazines) should be on a Circle basis .Each Circle should have its set, circulated around the Ex. Engr. and the S.D.Os. Magazines recd. in the Sectt. should be in the Sectt. library always for ref.

The S.E., S.I.C. (Mr. N.S.Joshi) is however against the idea as he feels that many books purchased or being purchased are probably never opened or are not likley to be opened.

The El.Engr. to Govt. is of the opinion that the Inistitution of Electrical Engrs. and the Institution of Engrs. (India) are already maintaining libraries containing electroial books and he thinks steps should betaken to make these libraries up to date in all respects, rather than Govt. incurring heavy expenditure in this respect. However, he considers

that it would be advisable for Govt. to maintain a compact technical library of its own, where standard works of authors dealing with everyday practices in Engrg. would be readily available.

The El. Commr. fully endorses the view that divisional libraries should be kept up-to-date. He also suggests tht there should be a library in each Circle, so that it may be taken advantage of by all concerned and a suitable man should be put in charge of the library.

The S.E.,B.C., is of the opinion that all officers should be allowed to purchase books for their office libraries freely. As for current magazines, a few good ones should be purchased in each division and circulated to all upto Overseers. The S.E.however states that his experience is that unless a man has an opportunity to work out some important designs, he looses all interest in current literature. Now, there is so much specialisation that for a normal Engr. most of the matter in the magazine is of little interest and many times unintelligible. The proper way of making use of these magazines is just to slip through them, so that you know what subjects are being currently discussed and you are able to refer to such articles, if you get a real problem to tackle.

5. Regarding suggestions(iii) & (iv):- The S.E., E.C., feels that young Engrs. should be encouraged to prepare and read technical papers. He agrees with the Jt. Director that one of the considerations for promotion should be their technical capacity judged among other things from the papers read. He feels that the suggestion re: a P.W.D. magazine is also worth a trial.

The S.E., C.C., states that Govt. has already been attached great some importance to profl. work of the nature of preparing and reading technl. papers on the part of

its officers. However, as matter stand, the average officer, if he is conscientious and sincere in his work, has hardly any spare time for causeries of this nature, particularly when there is no work of importance going on which is really worth elaboration in a paper. Instances are also not uncommon of certain officers devoting a substantial part of the time they should devote to their work to technical paper activities, especially when they know the letter are better appreciated and rewarded. Care will have to be taken to see that due check is exercised in such cases. Then S.E.feels that the idea of a P.W.D. magazine is good and that it may be a quarterly to start with.

The S.E., S.I.C.(Mr. N.S.Joshi) is of the opinion that while there can be no two opinions about encouragement to writing of papers and publishing them at recognized institutions , the mere suggestion that such publications should form oneof the considerations for promotionis far too in definite to be effective.

The S.E.supports the idea of a popular magazine on condition that it is published in regional laguages (Kanada, Marathi and Gujarati) or in the all- India laguage viz. "Hindi". Then alone will all all understand it. The magazine should also fill in the present need of postings and transfers of officers and sub-ordinates in P.W.D.as the BObay Govt. Gazette does not admit of notifns. by S.Es. and Ex. Engrs.

The S.E., S.C. C., feels that now that the Indian Institute of Engrs. and the Indian Roads Congress are establ-ished and fully developed, each Graduate Engr. Class I & II should be compelled to become an A.M.I.E. (India) and a member of the Roads Congress, so that he can study the literature

put forth through the journals of the Institution and thus keep in touch with the progressive thought in Engrg.

The S.E.feels that the present state of flux and expansion is hardly suited for encouraging P.W.D. officers to write and read technical papers and have a magzine oftheir own. The P.W.D. officers can even now contribute to the local centres of the Institution of Engrs. (India) and to the Roads Congress. Deputation to the Road Research Board to be set up by the Central Govt. and visiting in greater nos. than at present, Airfield, Irrign. and Bridge Major Works of Importance in other Provinces during execution should be freely encouraged in addition to the attendance at the Annual gatherings of the Institute of Engrs. and Road Congress by payment of bare T.A.

An annual P.W .D. week will be another event which has to be introduced both to develop an espirit decore and give opportunity for free exchange of views and information, technical and administrative.

The El.Engr. to Govt. and the S.E., S.C., feels that both the suggestions are good and worth considering.

The El. Commr. states that he is in complete agreement with the suggestion re: techl. papers. When works are in progress, presentation of papers are the normal practice which can be seen from the proceedings of the Bombay Engrg. Congress upto about 1930 and the varios techni. papers published by the Deptt. The El. Commr. ishowever not in favour of the idea of a departmental magazine. He feels that at present we have a number of technical journals in the country e.g. the concrete journals, the Indian Engr., the Journal of Institution of Engrs. , the C.B .J.Journal, the Indian Roads Congress Journal etc. wherein there is only occasionally a technically readable indigenous articles, and that we should encourge our officers to contribute articles to these journals .

This will also encourage popularisation of the existin techl. organisations and improve their finances. If a departmental Journal is to be encouraged at all, it should be issued periodcailly, say ,one a quarter.

The S.E., B.C.,is of the opinion that officers should be encouraged to prepare and read technical papers whenever they have something to say which will will be useful to others. But the technical capacity should not be judged by hese papers alone, as many times there is nothing orginal in the papers and the matter is collected from various books and publications. So it will be risky to base promotions on ability to write such papers. More value will have to be given to the practical ability of the officer.

The S.E. is of the opinion that the suggestion of a magazine run by the P.W.D. is a good one. All works of some importance carried out by the P.W.D. is-a-gee should be described in it so that good record of such works will be created and the knowledge of current designs will be widely disseminated.

The S.E. has also suggested that officers shoul should be sent out in turn on tours of inspection in neighbouring Provinces and some may be sent even outside the country. Such tours are of immense value in widening the horizon of thinking.

The P.H.E. entirely agrees with the remarks of the Joint Director of Technical Education. He states that it is absolutely true that the Engrg. officer gets literally buried under files of papers mostly of a routine nature and has little time to devote to his profession. Hence the present system needs a thorough overhaul . While he appreciates the suggestions made by him in paras. 5 and6 of his letters those contained in paras. 3 and4 are, he say

, not practical . The organisation has to be so designed as to enable the Engrs. to devote more attention to professional matters .

6. It is for orders what further action may be taken on this case .

Sd/-

2-12-49.

As remarked by the S.Es. ,C.C., & D.I.C. theeEx. Engr. in the very nature of his duties of carrying out the general Public Works in his area, cannot but be a sort of jack of all trades . After allthe routine work of maintenance of valuable Govt. assets like buildings, roads and irrigation works is not less important and wherein the Ex. Engr. can show his genius by efficient organisation and control in order to get the best job done out of the funds placed at his disposals But with a number of Irrigation Works now under execution or to be undertaken in the near future, some specialisation can beintroddsed by separating the Irrigation branch entirely from that of the Roads & Buildings. The public health works can be classified under the first category for the present . These two branches will have to be each under a separate Chief Engineer as in Madras and some other Provinces.

Central Designs organisation can function under each of the two Chief Engineers directly for working out special and complicated design work, retaining the routine design works however with the Ex. Engrs. so that they may not altogether lose touch with the type of work.

2. The Jt. Director of Technical Education has based some of his comments on the assumption that brilliant men are taken by the P.W.D.Although this might be true regarding the normal recruitment to the permanent cadre, P.W.D. have had recently to recruit large number of officers both Ex. Engrs. and Dy.Engrs.

swing-

owing to rapid expansion required for the Post-War development schemes. A number of these men though experienced cannot be classed as brilliant so far as their academic career is concerned. But this is inevitable so long as the present strength of the permanent cadre remains at a very low level.

3. Now turning to the question as to how best the candidates recruited either to the B.S.S.(I) or B.S.S.(II) should be trained, I would submit the following suggestions for consideration:-

(i) Having decided the branch i.e.(a) Roads & Buildings or (b) Irrigation & Public Health works, to which the candidate will be allotted, he should be attached to an important large work or works in progress in the respective branches for a period of two years. Opportunities should be extended in this period for the candidate to visit important works in progress in other Provinces if the works of the required type are not in progress at a particular time in this Province.

(ii) It is not desirable to attach the candidate to Design offices at least during the first five years of his service since this period must be devoted by him in acquiring the wider practical knowledge, which is the essence of the engineering profession. They may be given an opportunity of serving in the Designs Divisions after this period of extensive training in practical engineering.

4. The Jt. Director of Technical Education has suggested the building up of Divisional libraries. Although the suggestion is commendable, it is not practical on financial grounds. There are already two libraries, one in the office of the Poona Irrigation & Research Division at Poona. These can be brought up to date and also kept in charge of

The P.W.D. Sectt. B'bay, and other in

who should preferably be a graduate
the librarian ~~& Research Division at Poona. These~~
can be in Civil Engineering. If necessary another
central library may be built up at Baroda for the
facility of the engineers serving in the northern
part. The proposal of appointing a graduate in charge of the
P.W.D. Secretariat has been already mentioned,
but the post could not be so far filled in for want
of a suitable candidate.

5. Obtaining engineering magazines in each of
the Divisional offices.

Instead of each Division spending money for
all such magazines, it would be better if the
Librarian in charge of the central library where
all these magazines will be obtained, makes concise
notes on important articles published in the
magazines, gets them printed separately or in the
P.W.D. magazine proposed to be started and supplies
them to allthe Ex. Engrs. If any of them is interested in
a particular problem, he can get the magazine
concerned on loan for detailed study.

6. As for technical papers, I agree with the S.E.,
B.C.'s remark (para.4 onp.115), that although they
shouldbe encouraged to read them, their technical
capacity should not be judged by these papers alone
as many times there is nothing original and the matter
is collected from various books and publications.
As remarked by the S.E., more value will have to be
given to the practical ability of the officer.

7. The suggestions that the P.W.D. shouldedit a
magazine of its own is very useful and may be adopted
It may be quarterly to start with as suggested by
some officers. It is however doubtful if it can be
made self-supporting as contemplated by the Jt. Director
of Technical Educations.

8. Particular attention is also invited to the
suggestion contained in the last para. of the S.E.
B.C's. letter on p. 115. He has suggested that the

officers should be sent in turn on tours of inspection in the neighbouring Province and some may be sent even outside the country as such tours are of immense value in widening the horison of thinking. Jd 8.12-49

I do not at all agree with the Jt. Director, that candidates recruited to class I and Class II services should be attached to a central Designs Dn. My own opinion is that an Engineer must be trained for hard out door life in the early stages of his career and for that purpose he must be posted for field work in the first two years of his career, as survey work is the only work while will make him undergo the hard rigours of the P.W.D. After these two years he may be posted to either a Roads & Bldgs. Branch or an irrigation branch accordingly to his bent. After he has about a years' general knoledge of P.W.D. the candidate will have been able to make up his mind as to which branch he will will choose. After this he may be attached to a Designs office. The C.WIN.C. who have a speical Desiggs directorate are perfectly willing to undertake training of candidates sent by the Provinces in the varicus branches of irrigation including hydrodynamics dem desings. After two years stay in the C.WIN.C. the candidates can be returned back to the Provinces. The C.WINC. can offer greater variety in designs than any local Govt. can do.

I agree with the view of the then SE KIG that there should be a spl chief Engineer for irrigation who should look after new projects, research and designs. Similarly for the Roads and Buildings branch. The chief Engineer should be in direct charge of the Designs division of bridges and buildings assisted by the staffs of these two

Divisions. As regards the suggestion o for libraries it is no use having divisional libraries for instance in Poona there are half a dozen S.Es. and it is not worth the money that each man should be allowed to flutter money on buying the same books. One SE in Poona can have a library and all E.Es. in that station could use the same.

Because of the specialisation of irrigation I consider it desirable to have two branches marked by two Chief Engineers. When Govt. have only one Chief Engineer to look after all troubles, it is difficult for them to agree to have an Ex. Engineer for each branch separately but in these days of specialisation it is necessary to recognise that the two branches are distinct.

As regards giving promotions to writers of papers as remarked by SEDIC, many of these papers are more Scissors & paste and it would be entirely wrong to judge a man as fit for promotion to the rank of Chief Engineer because of the numbers of papers he has read without taking into consideration his abilities in other directions like execution of work, maintenance of morale amongst the staff, his honesty of purpose Anybody can write a paper and make a show of his intelligence.

Sd/-

16-12-49.

Secy. D.S. (R& B.) may also see these papers which deal with important problems of a fundamental character though of no immediate and urgent nature.

Well-We will then discuss.

Sd/-

17-12-

D.S.(R & B)

B.V.P.

Some of the suggestions that have been made are very surprising, e.g. , a library allowance of Rs. 50 per annum. Is it prposed to buy a couple of college text books ?

The file is for practical (post -graduate) training to B.S.B. and a good discussion has taken place as to whether there should be one or two chief engineers!

Whilst I agree that practical work and power to control labour and administrative ability are required from an engineer of the P.W.D., the P.W.D. as the best paid service of engineers should be competent to originate new ideas and methods and advise Govt. on modern engineering. It must produce engineers of original ability, which it has not done so far.

For this purpose there must be close contact with academic institutions and official life.

I would therefore suggest-

(1) that all recruitment of graduates (B.E.) should be in B.S.B . II;

(2) that at any time after confirmation up to theend of the 15th years of service a man may at his request be posted in such a place as would enable him to study for a post-graduate degree and for study leave for at least six months combined with such other leave as he has to his credit may be given to him so as to leave him free for an academic year (10 or 10½ months), to enable him to take post-graduate degree. (The University gives one a very wide choice of subject.);

(30.....

(3) that only those who have a post-graduate degree be recruited to B.S.E.I, whether directly or from B.S.E. II and when directly recruited should be given credit for the time spent in getting the degree;

(4) that as more and more candidates with post- graduate degrees become available, there should be less and less promotions from B.S.E. II to B.S.E. I.

As for libraries, district libraries are of no use and would not only be expensive but would tend to t e loss of books.

The Central Library of the P.W.D. should be brought up-todate, engineering journals subscribed and books bought. A certain sum should annually be budgetted for the library (R. 5 to 10 thousands) and all officers of B.S.E. I and II be constantly kept in touch by sending out every quarter a list of the journals subscribed and a list of new books added. Officers should be encouraged to ask for books and journals and a list kept of those who do so.

Articles in reputable engineering journals should be encouraged. In the beginning, they must be of the scissors and paste variety . One cannot expect the P.W.D. officers as the department is constituted at present to show suddenly a galaxy of original talent. That will come as the standard of officers is raised . But even the scissors and paste varsity will show that the writer has spent his time over books rather than at bridge in the club.

Reputable .....

Reputable engineering journals will not accept that variety of article for long.

The article and whether it shows original work may be noted in the confidential reports .

Some beginning must be made to get out of the rut.

Sd/-

30-10-50

H.M.P.W.D.

4/12/50

Dy. Secy. Shri Joglekar

to speakk.

Sd/-

7-12-50

B.V.P.

Note. I

Recruitment and Training P.W.D.

Whilst it is agreed that practical work and power to control labour and adminsitrative ability are required from an engineer of the P.W.D. , the P.W.D., as the best paid service of Engineers, shu /be Competent/to originate new ideasand and methods and should/advise Govt. on modern Engineering. It must produce Engineers of original ability. For this purpose, there must be close contact with academic institutions and official life. It is , therefore, suggested -

(i) that all recruitment of graduates ~~(B.Es~~ (B.Es.) should be in B. S.E. ~~IIxx~~.

(ii) that, at any time after confirmation upto the end of the 15th year of service, a man may, at his request, be posted in such a place as would enable him to study for a post- graduate degree and /or study leave for at least six months combined with such other leave a he has to his credit , may be given to him so as to leave him free for an academic years (10 to 10½ months) to enable him to take a post-graduate degree. (The University gives one a very wide choice of subjects);

(iii) that only those who have a post-graduate degree be recruited to B.S.E.(I), whether directly or from B.S.E.(II) and, when directly recruited, should be given credit for the time spent in getting the degree.

(iv) that , as more and more candidates with post-graduate degrees become available, there should be less and less promotions from B.S.E.(II) to B.S.E.(I).

B.V.P.

Note II.

Recruitment and Training.

In the Public Works Department, we want to have men of outstanding merit and we can get them by holding departmental examinations. In the past, it was the best arrangement to take up the first and second students from the Poona Engineering College class I Service since, but, now that there are a a numberof Universities examining candidates for the B.E. degree, there may not be the same uniform standard. It is therefore allthe more necessary to have competitive examinations. In spite of a multiplicity of Engineering Colleges in the State, it would, however, still be possible to select the first student passing out from each University in the State provided the Engineering Services were required to recruit as many as 6 persons each year. If such be the number of likely vacancies each year, the best men from each Engineering College in the State could conveniently be guaranteed a post. In case the number of Vacancies class I are less than the number of best candidates from the several universities , a slection could be made out of them for the required vacancies .

Undoubtedly, the best arrangement to recruit men would be by competitive examination. If the examinations are to be held, there must be good machinery for the purpose. It should not consist of departmental officers only. Although the Bombay Public Service Commission has not been organising such examinations at present, the Delhi Public Service Commission does.

Class I and Class II officers are all right when we select them somehow, but if we make young

graduates pass through good training for two or three years (which subject is referred to in the latter part of the note I, and make them pass a competitive examination, then the recruitment should be in one class only. It will be wrong to have two classes in such a case .

It should be considered whether any kind of probationary arrangement is possible in the Engineering Department; if so, how many probationers there should be and what salary or allowance should be paid to them? The selection should be made from persons, who have made a mark in the University examination and not from those who got through somehow . It is essential that junior people, who have done well in their respective cadres, should get a chance of promotion, and an allowance must be made for the recruitment of a certain number of them only out of them. If the system of probationary training is introduced and officers are recruited from those who have undergone this training , then there are two alternatives: either they must appear for the post-graduate examination held by the University or pass the competitive departmental examination, before recruitement to the Service.

As regards the post-graduate training, it is interesteing to study the methods adopted in the Medical Colleges and Hospitals , and seehow far they can be adopted with advantage in the Engaineering Department. Good facilities exist for post-graduate examination in the Hospitals and Medical Colleges , which do not exist to the same extent in the engineering department. There are a large number of hospitals both teaching and non-teaching hoppitals in the state. Young medical graduates are given appointments in various branches in hospitals and they reside in the hospitals themselves. The holders of such appointment

are called House Surgeons, or House Physicians. They could hold posts in two or three departments etc and thus gain experience in them one after the other, and then be appointed to senior Resident posts, called Registrars. The experience thus gained is very helpful to them in their professional work and also in enabling them to get through their post-graduate examinations. There is the added advantage in enabling the institutions to recruit their teaching staff from amongst those who had such practical training in various Departments. This system is in vogue in the K.E.M. Hospital and to some extent in the J.J.Hospital.

Really first class students may get two or three or even more appointments in the hospital and thereby get an all round knowledge and experience. Before appearing for their post-graduate examinations, if they want to specialise in any particular branch of medicine, say, surgery, there is ample scope for that. They can secure appointments as surgical or medical Registrars. The maximum period during which they could hold such appointments is three years. During thisperiod, they get very good experience. They look after the work of the hospital. In emergencies, they attend day and night . Some of them have to their credit 300 to 400 major operations, including those on the abdomen, chest etc. Then they appear for the M.S. or M. D. examination etc. as the case may be. After the 1st year's appointment as Registrar, if they ~~are not successful in getting promotion to appointment as the case may be. After the first~~ to appear in a post-graduate examinaio. they are intimated that their continuance in the post would depend upon their working for the post-graduates' ~~examination.~~ A

...ination. After finishing the three years' course, capable people can be appointed as Assistant Surgeons or Assistant Physicians in case of a vacancy on the teaching staff. After five years' tenure of such an appointment, they can become full Surgeons or Physicians. This is how the system of providing for the staff of the non-Government medical college was evolved. This arrangement has been very successful in the sense that it has enabled the K.E.M. Hospital not only to get first class teaching staff, but also to turn out excellent general practitioners with considerable surgical and medical experience, who are able to do not only very good practice, but also a variety of practice. They are able to handle surgical operations themselves in the mofussil areas.

In the Engineering Department, there is no such organisation like a hospital where as number of people can be trained. There are, however, a large number of works to which officers can be posted as probationers for a year or two or three, and shifted from place to place so as to give them training in various fields. We have got a large number of works goingon in different parts of the state where we should be able to post probationers and give them training. The training to be given must be of a varied type, that is, the probationer should not be asked to stick up to one job for a long time. He should be given training in irrigation works, roads and buildings etc.Thus , during his probationery period of 2 to 3 years , the candidate should have training in different branches of Engineering and under different people . A probationer should be able to do four four or five types of jobs before he is taken up in service so that, later on when men are to be selected for senior jobs, there were be persons in the service with necessary training , from whom such selection

could be made.

There is one difference between a hospital and Engineering works,however, in the former, work is systematically organised department-wise, so that every scope is available for training in a particular speciality. Secondly it has the advantage that it is a teaching institution and the staff are specialised teachers with a good practical experience. Thirdly they are provided with residential quarters on the spot, which brings them in close contact with their patients day and night. No such systematic organisation in training is possible in engineering Works; nor are all officers in charge of works always adept in imparting instruction, however practical or competent they may be otherwise. If proper training is to be given to Engineering probationers , it would be essential to pick up some capable officers who may be also good at instruction work and under who the probationers could be posted . In the first instance the probationers should be attached to such senior staff before they are passed on to other officers for practical experience in different types of jobs.

B.V.P.

Letter .

No.6775/36-E(I) Public Works Department,
Bombay Castle (Bombay No.1),
6th March 1951.

To

The Chief Engineer, Public Works Department.
The Chief Engineer, Bombay Electric Grid .
The Superintending Engineers of Circles.
The Electrical Engineer to Government.
The Public Health Engineer to Government.
The Joint Director of Technical Education, Bombay.

Subject:- Practical training to Class I and Class II officers.

Among the suggestions made for giving practical training to Class I and Class II Officers are the following:-

(1) That young Engineers should be kept alert and conscious of latest developments by building up divisional libraries with standard books and the latest engineering magazines which should be circulated to reach even the Sub-overseers.

(2) That young Engineers should be encouraged to prepare and read technical papers either on designs of construction before professional institutions and one of the considerations for promotion should be the technical capacity as judged from the papers presented to professional institutions.

(3) The Public Works Department should edit a magazine of its own giving personal notes, photographs and descriptions of works carried out allover the State with the technical aspects well emphasized. It should also contain

contain a short resume of interesting items of engineering and news collected from other technical journals . Such a magazine should be compulsorily subscribed to by all Public Works Department men from sub-overseers upwards. Every individual engineer should submit for this magazine short notes on the works under progress, works about to begin and notices about tenders for works perjected.

4. As regards the suggestion at (1) above, Government is pleased to direct that in places where there are two or more Public Works Department Divisions, and /or the office of a Superintending Engineer, part of the annual grant of Rs. 50/- for books etc. which is not required by each such office for stock books or manuals should be pooled and used to build up one library in the station for common use. At Bombay, for instance, the PublicWorks Department Secretariat library should be used for this purpose so far as the Presidency Division and the Office of the Superintending Engineer Bombay Circle, are concerned .Such a local Public Works Department library should be located in or put in charge of a permanent Division. Concrete & proposals in this matter should be submitted to Government by the Superintending Engineers.

5. Regarding suggestions (2) and (3) above, viz. technical papers and Public Works Department magazine, Government has decided that as a first step towards the starting of a publication and in order to gauge the talent available, reports should be invited from officers, with particular reference to the following points:-

(a) Defects and failures noticed in works carried out in the past.

(b) Suggestions for improvements of engineering

practice and methods of construction and for use of local materials, for cheapening cost of work.

(c) Difficulties encountered in the execution of works, etc., and the methods adopted to overcome them.

These reports should be limited to 1000 words each and should be based on personal knowledge and experience, particularly in case of (b) above. They should be submitted direct to Government by 30th June 1951 with a copy to the immediate superior of the officer submitting the report.

By order of the Government of Bombay

Id/-
7-3-51

(K.V. Joglekar,)

Deputy Secretary to the Government of Bombay, Public Works Department.

D.A.:- Nil

EB (I).

Copy of G.L. No. 6775/36-B(I), dt. the 8.3.51 re: Practical training to Class 4e-Class I above and Class II officers given to:-

EB.(II) Sd/-
12-4-51

WB. Sd/-
12-4-51

AB.(II) Sd/-
13-4-51

CB. Sd/-
13-4-51

El.Br. (I) Sd/-
14-4-51

El.Br.(II) Sd/-
14-4-51

M.B. Sd/-
14-4-51

AB.(Y) Sd/-

16-4-51

IB.(Y) Sd/-

20-4-51

IB.(II) Sd/-

16/4/51

Cok.Br. Sd/-

17.4.51

(The case be pl. returned to SB(I) by the the last named branch.)

B.V.P.

Form in which report about the suitablity or otherwise of a Deputy Engineer (on probation) for being confirmed as Deputy Engine r in the B.S.E. Cl. II at the end of the second year of his training should be submitted to Government .

Report on conduct, work and qualification of Shri.....

Deputy Engineer (on probation.)

1. Names and nature of work on which employed, specifying particularly the name of the Sub-Division which was placed in his charge (if any)with details ofthe nature of work in that Sub-Division.

(Periods should be mentioned.)

2. Departmental efficiency and performance-

(a) Promptness in the disposal of work.

(b) Execution of works-

(i) Power of organization.

(ii)Resourcefulness.

(iii) Economy.

(iv) Rapidity.

(v) Knowledge of accounts rules and observance of the same.

(vi) Capacity to do hard and strenous work.

(vii) Fidelity to superior officer.

3. Professional acquirement and special aptitude .

(a) Has he special aptitude for particular type of work.

4. Health and temperament, indicating

&& if there is anything in his work to show that his efficiency as a Government officer is impaired by his constitution or habits and whether he is reliable.

General remarks (an overall impression as to how the officer has acquitted himself in the period and whether he is considered fit for being confirmed as Deputy Engineer in the B. S.E. Class II)

Executive Engineer,

..... Division.

Superintending Engineer

..... Circle.

B.V.P.

Form of report on "Candidates" for first year of training to be submitted by the Executive Engineer under whom the candidate is posted for training

1. Name of the Division to which the Candidate is posted
2. Period from to .
3. Engineering works in progress on which placed to undergo practical training.
4. Remarks on the maintenance of a notebook accompanied by a skeleton diary.
5. The nature of work done (out -door of office) especially stating whether the candidate has actually been in charge of it, or if he has done any work under ~~if he has done~~ Executive Engineer's immediate eye or which has been frequently inspected by the Executive Engineer.
6. The general opinion of the Executive Engineer on the manner in which the candidate has used his opportunities of acquiring practical knowledge .
7. Has the candidate shown himself reliable, resourceful and through ?
8. Remarks of the Executive Engineer for appointment of the candidate as Deputy Engineer on probation in the Bombay Service of Engineers, Class II.

9. Recommendation of the Superintending Engineer for appointment of the candidate as Deputy Engineer on probation in the Bombay Service of Engineers, Class II.

10. Recommendation of the Principal, College of Engineering, Poona , for appointment of the candidate as Deputy Engineer , on probation in the Bombay Service of Engineers, Class II, in the light of the opinion formed by him from the inspection of the candidate's note books.

~~Signature~~

B.V.P.